ARCHIVES OF OTOLOGY.

A CASE OF ACUTE OTITIS MEDIA FOLLOWED BY AN ABSCESS IN THE TEMPORO-SPHENOIDAL LOBE; OPERATION; DEATH FROM SHOCK; AUTOPSY.

By GORHAM BACON, M.D.

(*With two figures on accompanying plate.*)

The patient, a young man of twenty-five years, single, born in the United States.

History: March 23, 1896.—Eight weeks ago, he had a slight discharge from the left ear, but before this he never had any ear disease. One month ago he came under the care of my assistant, Dr. F. Whiting, who found, on examination, that the seat of the trouble was in the attic, which was congested and bulging. This was incised and a few drops of pus evacuated. This operation was repeated on several occasions, and each time it gave great relief to the patient, who complained of considerable headache, especially over the left side. Besides the headache, there has been at times more or less tenderness on pressure over the mastoid. He was advised to enter the infirmary as an in-door patient, and receive proper treatment, but he refused to do so until to-day, when he was obliged to come in on account of the mastoid pain, which reappeared, and the severe headache. For the past three weeks his mother has noticed that he has had loss of memory for objects and names of friends. Memory for events good. He has been extremely irritable when suffering from headache, and his friends have noticed that he has acted and talked "queerly."

Examination.—There is very slight discharge in the left canal, but there is bulging of Shrapnell's membrane; small perforation. The patient has slight sensory aphasia. He is unable to name certain objects held before him, such as "scarf-pin," "cuff button," etc. No motor aphasia. He has severe headache,

especially on the left side. Temp. 98.8° F.; pulse full and slow, 56; respirations 16. Heart shows long systolic murmur. For some time he has been inclined to constipation. He hears the watch held close to the ear and the bone-conduction is good.

Diagnosis.—Brain abscess suspected. It seemed best to Dr. M. Allen Starr, who kindly saw the case in consultation, to defer any exploratory operation on the brain for the present. I decided to operate at once on the mastoid and thoroughly clean out the contents of the antrum. Under ether an incision was made behind the auricle, and the antrum was opened. The bone was found very dense and like ivory. The antrum contained granulations and a small amount of pus, and was carefully examined with a probe to see if a sinus existed in the roof of the middle ear, but none was found. The bone of the antrum was roughened and was thoroughly scraped and packed with iodoform gauze, having first been washed out with a bichloride solution, and then a bandage applied.

March 24th.—The patient was free from pain during the night, and slept fairly well. Temp. normal, but pulse still slow, 56, and soft. Slight headache, and slight facial paralysis on the left side, undoubtedly due to the operation. He was seen in consultation to-day by Drs. Starr and Gruening. The latter examined the eyes and found the nerves and discs normal.

March 26th.—Temp. normal; wound healing well. The patient has had very little pain.

March 29th.—Since the 26th the patient has improved steadily, and his memory for objects is perfect, but he still has difficulty in remembering proper names. He has been practically free from headache and is anxious to be up and get out of the hospital, and says he feels well. He denies any venereal trouble, but admits that he drank considerably for two years up to January 1st of this year. The patient is said to have gotten up out of bed to-day and to have exposed himself before the window, and to have used vulgar language.

April 1st.—His facial expression is weak; he smiles constantly when talking; there is slight tremor of his tongue and lips; his mental condition is about the same except that he appears childish. This morning he was singing and laughing and trying to get out of bed, and was very much annoyed when made to return. His memory for proper names is especially poor.

April 4th.—To-day he complained of some general pain in his

head and had spells of hilarity, *i. e.*, laughing and singing. He vomited at noon and at 4 P.M.

April 5th.—The patient vomited twice during the night and complained of headache and nausea this morning. He vomited at 7.45 and again at 11.30 A.M. At 10 A.M. he was actively delirious, and later became somnolent and semi-comatose, brightening again at 4 P.M., when I saw him with Dr. F. Peterson in consultation, in the absence of Dr. Starr, who was out of town. He was able to recognize a silver quarter of a dollar but other objects he failed to name, simply answering "quarter" to everything held up before him. Reflexes normal; pupils normal and react; extra-ocular muscle movements normal. Very slight neuritis of both optic discs, affecting principally their nasal half. No appreciable swelling, but faint œdema of the retina in the macular region.

Diagnosis.—Abscess in the temporo-sphenoidal lobe. Immediate operation advised.

9.45 P.M. *Operation*—under ether.—Assisted by Drs. Gruening, J. L. Adams, and F. Whiting, I made a vertical incision in the scalp, beginning 2 *cm* upward and backward from the meatus, and carrying the incision upward 4 *cm.* I brought this incision forward and made a flap so as to give me space enough to remove easily a button of bone with a trephine. The centre pin of the trephine was placed 2.5 *cm* above the external auditory canal. The dura mater seemed normal but was tense. A large aspirating needle was introduced in different directions; viz., inwards, slightly forwards and backwards, but without result.

The opening in the skull was then enlarged in all directions. At this time the patient became very weak; pulse 170; respirations very slow and shallow. Hypodermics of strychnia, nitroglycerine, and aromatic spirits of ammonia were given, and the patient rallied. The aspirating needle was then introduced in a direction backwards, inwards, and upwards for 3 *cm* and brought out pus. After incising the dura, I introduced my little finger and found a fairly large abscess cavity, but there seemed to be no lining membrane. About half an ounce of pus was evacuated. The patient's pulse was noticed at this time to improve very much in character and strength. Iodoform gauze was carefully introduced in the abscess cavity and the external wound washed with boracic acid solution and the whole bandaged. The operation lasted one hour and a half.

Shortly after the patient was brought back to the ward, the

pulse became very rapid and weak, respirations at long intervals and shallow, and marked cyanosis appeared one and a half hours after the operation. Life was prolonged for about half an hour by hypodermic injections of tr. digitalis, atropia, and strychnia, and by artificial respiration.

The patient died, apparently from shock, about two hours after the operation.

From the time that the patient entered the hospital till the day of the operation, the temperature ranged from 97.8° F. to 99.6° F., with the following exceptions: On March 24th, at 9 P.M., it was 100.4° F.; on the day of the operation, at 3 P.M., the temperature was 100.6°, and also at 9 P.M., just before the operation.

The respirations varied from 14–20, and the pulse from 54–99.

Autopsy—eleven hours after death.—Rigor mortis and hypostatic lividity well marked.

Left kidney, marked congestion; a few drops of pus in the pelvis; no other evidence of active pyelitis.

Right kidney also contains pus.

Liver and spleen, normal.

Lungs show nothing of importance.

Pericardium, normal, but contains considerable clear straw-colored fluid; milk-spot on epicardium, near apex. Heart normal in size, soft; all cavitities filled with fluid blood, dark red. Valves normal. Heart arrested in diastole.

Skull presents an irregularly circular opening, 3 *cm* in diameter, the centre situated directly above, and 3 *cm* from the external auditory meatus, on the left side. An opening also, 1 *cm* by ½ *cm*, in mastoid bone, with its centre over the position of the antrum. On removing the skullcap, two openings were observed through the dura, the lower and larger one measuring 3 *cm* in vertical, 1.5 *cm* in horizontal diameter. It was filled with iodoform gauze. The other one, from which some brain substance protruded, was 5 *mm* in diameter. Vessels of pia engorged. The pia was found to be adherent to the dura mater at a point immediately below the opening made at the time of the operation, over an area of 2 *cm* in diameter. Near the centre of the adhesion the dura was thickened and perforated (Fig. A, 2); the outer third of the superior surface of the petrous portion of the temporal bone was discolored, its vascularity increased, and at a point corresponding to the perforation in the dura, the inner table presents an opening (Fig. A, 1) which communicates with the attic of the

tympanum immediately beneath. On removing the dura mater, an opening into the brain substance at the inner half of the third temporo-sphenoidal convolution, measuring 2 *cm* in diameter, is seen. The opening, which extends inward and a little backward to a distance of 3.5 *cm*, is filled with iodoform gauze. Fig. B, 2. A softened area of brain tissue, 3 *cm* in diameter, occupies the posterior half of the third temporo-sphenoidal convolution. Lying transversely in the softened brain tissue is a reddish mass, resembling a blood clot, which measures 3 *cm* in length and about 1 *cm* wide. On enlarging the opening made at the time of the operation, by an antero-posterior incision, the brain substance beneath the cortex throughout the whole of the lower part of the temporo-sphenoidal lobe is found softened and streaked with blood. The reddish mass above referred to as lying in the softened brain tissue proved to be the capsule of an abscess, the cavity of which measured 2.5 *cm* in its longest diameter and 2 *cm* in its shortest diameter. (See accompanying plate. Fig. B, 1.) The wall of the capsule measures about 2.5 *mm* in thickness. The capsule was empty, but exploration with a probe failed to discover any opening through which the contents had escaped. At one point, a blood clot apparently formed part of the wall. In all probability a rupture of the capsule had occurred, permitting the contents to escape into the surrounding tissue. The sinuses of the meninges and brain presented nothing abnormal.

REMARKS.

The case is an interesting one owing to the short time that the ear disease existed, and also on account of the seat of the disease. The inflammation in the ear was almost wholly limited to the attic and antrum. Each time that an incision was made in Shrapnell's membrane, a few drops of pus were evacuated, and this procedure always gave great relief to the patient. He was advised to enter the hospital for proper treatment, and told of the danger of delay, but he refused to come in until compelled to do so. In the light of the post-mortem examination, I regret that I did not cut away sufficient bone, when I exposed the antrum, to examine the roof of the tympanum from the middle cranial fossa. On account of the ivory-like hardness of the mastoid process and the history of the case, as well as the severe headache

complained of, the slow pulse and the aphasic symptoms, it seemed to me most likely at the time that the pus had forced its way through the tympanic roof. I failed, however, to find a carious opening in the antrum with a probe. It is probable that the small abscess situated just above the tympanic roof existed at the time the patient entered the Infirmary. If an operation had been done at this time, the result might have been different. Although no communication was found with a probe between the smaller and larger abscess cavities, an opening undoubtedly existed, as the smaller one was found empty at the autopsy, and the larger one had been successfully evacuated at the time of the operation.

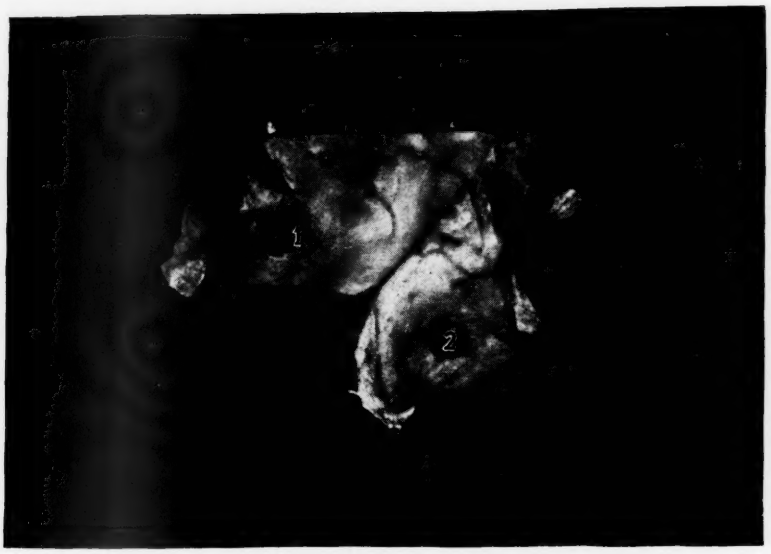

FIG. A.—1. Carious opening in tympanic roof. 2. Thickened dura turned back, but when in position covers carious opening.

FIG. B.—1. Primary abscess cavity connected with sinus in tympanic roof. 2. Secondary abscess cavity in temporo-sphenoidal lobe. Both abscess cavities found free from pus at autopsy.

THE OPERATION OF MASTOID ANTROTOMY FOR THE CURE OF OBSTINATE O. M. P. C., WITH DESCRIPTION AND PRESENTATION OF THE AUTHOR'S ANTROTOME.[1]

By H. A. ALDERTON, M.D., of Brooklyn, N. Y.

(*With three drawings.*)

PROLONGED chronic suppurative catarrh of the middle ear menaces the integrity of the human economy in several ways. Its tendency is always to attack new structures; it is never perfectly quiescent. It advances here a little, there a little. It first infiltrates, then absorbs. The former, at times, leads to necrosis of the soft and bony parts; the latter, to caries. This necrosis or caries opens up a path for the passage of inflammatory processes to new structures. From the middle ear these pathological paths lead, *e. g.*, to the internal ear, the facial nerve, the mastoid process, the lateral sinus, and the brain. Involvement of these structures produces deafness, facial paralysis, mastoiditis, sinus phlebitis, meningitis, cerebral or cerebellar abscess, etc.

The tympanic membrane, wholly or in part, may be the first to go, then the ossicles perhaps, and so on until the above-mentioned conditions manifest themselves. Or the ossicles may remain practically normal, the disease advancing in other quarters; thus the writer has removed both malleus and incus in a case of prolonged suppuration of the middle ear following scarlet fever and found them perfectly normal, and, notwithstanding the increased facility of drain-

[1] Read at the Annual Meeting of the American Medical Association at Atlanta, 1896.

age thus brought about, the process still went on. Or nature may throw off the ossicles, with the exception of the stapes, which is nearly always persistent, and the disease even cause the destruction and disappearance of the external attic wall so as to expose to view the aditus and the entrance to the antrum and still the discharge keeps up, more or less freely. And this in cases which are not truly cholesteatomatous, the surfaces in reach of vision and the probe being simply moist, succulent, and congested to a greater or lesser degree. This discharge may be so slight that the process seems to the patient to be quiescent or cured, but far from this being the fact, each observation, at longer or shorter intervals, shows fresh damage following farther advance. The general system may suffer by absorption through the constant passage of pus along an atrophied Eustachian tube; the hearing become progressively worse; facial paralysis make its appearance, etc.

Coincident with these changes the mastoid process is prone to become the seat of chronic ostitis, with gradual condensation of the cellular structure and thickening of the external compact bony wall. If this change took place on all sides at once, it would be advantageous rather than otherwise, but such is not always the case, for often coincidently with the mastoid hyperostosis there occurs an erosion or thinning of the walls guarding more or less vital structures but little removed from the seat of active suppuration. How often do we see, in cases of prolonged suppuration with an acute exacerbation calling for operative interference to preserve the life of the patient, a sclerosed mastoid process that offers such an obstruction to the performance of antrotomy as often to prolong the time of operation to hours instead of minutes. And the increase of time necessarily occupied is not the only objectionable feature, for still more important are the repeated concussions to which the contents of the skull are subjected through the forcible chiselling required to make any headway. This violence may be the last straw required to change meningeal irritation into real meningitis or to rupture the thin wall of a brain abscess.

Now the writer, in his pathological researches upon specimens obtained from the dissecting room, has demonstrated to his own satisfaction that it is just in these cases that one often finds that the cause of the persistency of the pathological processes lies in the antrum (see Fig. 1). The mastoid process is sclerosed but otherwise healthy; the middle-ear cavity is then only secondarily instead of, as formerly, primarily involved, and it is in the antrum that one must seek for the active process.

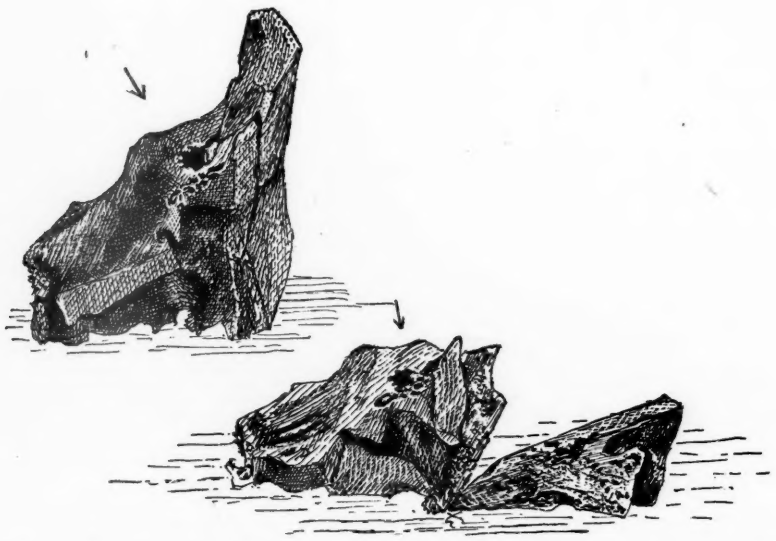

FIG. 1.—From specimen in the author's collection. Arrow points to opening made in roof of the mastoid antrum, the black nodules in the neighborhood being cells filled with granulations. The mastoid, except in this region, being sclerosed. The Mt., the malleus, and incus are gone, the stapes is bound down, and the aditus is free.

What do we find here—a lining of thickened infiltrated mucous membrane, with more or less granulation tissue, which has invaded the osseous walls of the cavity; the cells of the bone in the neighborhood of the antrum are filled with granulations, which, larger toward the antrum, become smaller as you approach the compact layer of the internal surface of the temporal bone. Looking down upon the cerebral surface of the tegmen antri one sees a sort of tessellated pavement, whose pinkish areas correspond to cells in the bone filled and gradually enlarged by granu-

lomata. It requires no imagination to foresee that the time must come when the contents of these cells will reach the surface and produce infection of the structures in contact. As shown by the above cut of a specimen in the writer's collection, this process may and does keep up, notwithstanding the fact that the ossicles (malleus and incus) have been thrown off, that the *Mt* is gone, and that the drainage from the antrum to the outer world is nearly as free as may be, except for the fact that the floor of the antrum is below the level of the lower wall of the aditus ad antrum.

What shall we do in cases of prolonged suppuration, where ossiculectomy does not bring about a cure, or where nature has removed the ossicles and still, after curetting the tym-

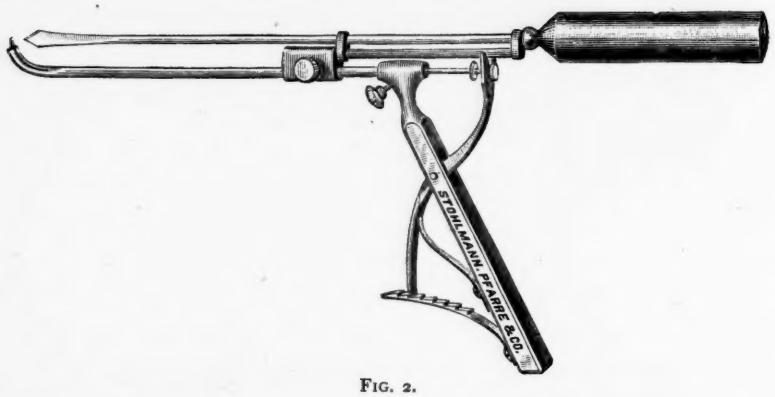

FIG. 2.

panic cavity and the mouth of the aditus and faithful treatment by syringing, etc., the discharge keeps up, with or without periodic exacerbations? Shall we perform the classical mastoid operation, subjecting our patient to the danger of cerebral concussion, of operative facial paralysis, or of accidental opening of the lateral sinus? Far be it from the writer to deprecate the running of all these chances where it may be necessary to extend the field of operative interference to the brain or its adnexa; where the mastoid operation is but the preliminary step to more radical measures. But where this is not contemplated, especially when all that is undertaken is the cure of the persistent suppuration, then the writer suggests that the instrument here presented may serve a useful purpose. (See Fig. 2.)

This instrument consists of a canula, to whose proximal end is affixed at an obtuse angle a handle and whose distal free end has such a curve that the mouth will, when this end of the canula is introduced behind the annulus tympanicus, be directed toward the tympanic mouth of the aditus ad antrum. Through this canula passes a probe-pointed stylet whose proximal end is manœuvred by a lever with fulcrum in the handle, the movement of the lever being regulated by a ratchet springing from the handle; this lever when pressed against the handle projects the watch-spring probe-pointed distal end of the stylet from the distal mouth of the canula through the aditus into the antrum The distal end of the stylet is tempered in such fashion that it always continues the curve of the distal end of the canula.

To the proximal third of the canula, just behind the handle, is fixed a block, in which is a bore running parallel to that of the canula; within this bore on its proximal side is adjusted a rod fixable by a screw; this rod has at its proximal, and half an inch from its distal end, two similar eyes, attached above on its upper surface, through which passes another rod whose distal end forms a trephine and whose proximal end has the form of a handle with a shoulder, which permits the advancement of the trephine only up to within $\frac{1}{8}$ of an inch of the watch-spring distal end of the stylet, when protruded.

The trephine rod must always, therefore, remain parallel to its carrying rod and canula, and the trephine can never extend farther than to within $\frac{1}{8}$ of an inch of the distal watch-spring curve of the stylet.

The method of operating is as follows. The ossicles having been thrown off by nature or removed artificially and curettage of the tympanic cavity having been performed without resulting in the cure of the suppuration, the patient is anæsthetized. The external osseous wall of the attic is removed by means of Dench's bone punch and Hartmann's chisel forceps until a probe can be easily introduced into the aditus, all strands of fibrous tissue still remaining being curetted as far as may be into the

mouth of the aditus. If cocaine be used the hemorrhage is not obstructive in most cases.

Then a curved incision, 2½ in. long, is made ¼ of an inch behind and parallel at all points to the auricle, and the bone exposed down to the beginning of the osseous canal by separating and reflecting forward the periosteum. The external auditory canal is now either packed with gauze or a tent is passed in sufficiently far and the whole posterior wall of the cartilaginous canal is cut through at a level with the edge of the osseous canal. The gauze or tent is now removed and the posterior wall of the canal approximated to the anterior, thus allowing the introduction of an aural speculum through the incision.

The carrying rod of the trephine rod is now disconnected from the block on the canula and, using the handle of the trephine as ordinarily, the trephine is bored into the outer table of the mastoid for a quarter of an inch or so, at a point ⅛–⅙ of an inch behind the middle of the posterior wall of the canal. This is in order that the trephine may bite when introduced afterwards. The trephine is now withdrawn and the canula introduced through the incision in the posterior wall of the canal, either with or without the use of a speculum, into the tympanic cavity and the mouth turned towards the aditus, the stylet pushed through the aditus into the antrum by the lever, and the lever caught on the rachet.

The handle of the canula must now be held lightly by an assistant and the carrying rod of the trephine adjusted to the block on the canula. The operator then takes the handle of the trephine and, again introducing the trephine into the superficial hole previously made in the outer table of the mastoid, proceeds to bore into the bone until the shoulder stops farther progress, the handle of the canula being all the time held very delicately by an assistant, so as to produce no traction. The instrument is then withdrawn and the antrum is found to have been perforated (see Fig. 3).

The wound is now washed thoroughly through the artificial passage to the antrum and externally; the external auditory canal is packed with gauze introduced through the natural

orifice, thus bringing the posterior cartilaginous wall again into its normal position; the mastoid incision is sutured superiorly and inferiorly but left open in the middle, and the drainage tube of silver introduced through the trephined opening to the antrum. The silver drainage-tube has a shoulder which prevents it from disappearing into the bone, and the tube is sufficiently long to reach the antrum when the soft parts are in position. Gauze dressing is applied over the wound as in the ordinary operation.

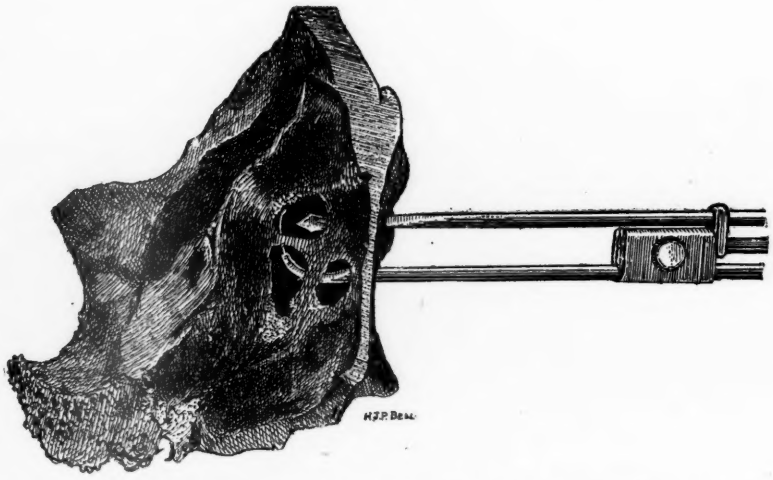

FIG. 3.—From specimen in the author's collection showing instrument in position. The roof of the ext. aud. canal, the tympanum, and mastoid antrum having been removed.

Cleansing and healing solutions can now be introduced directly into the antrum, as frequently as may be desired. The trephine hole is kept from filling with granulations by frequent removal of the tube, curetting, and re-introduction.

I have to thank Messrs Stohlmann, Pfarre, & Co., of 28th St., New York, for perfecting the instrument and furnishing cuts.

TWO CASES OF SARCOMA OF THE MIDDLE EAR.

By WILLIAM MILLIGAN, M.D.,

HON. SURGEON TO THE MANCHESTER EAR INSTITUTION; LECTURER UPON DISEASES OF THE EAR, THE OWEN'S COLLEGE.

(*With two figures.*)

MALIGNANT growths arising from any portion of the auditory apparatus are not frequently met with in practice. Such growths may be either epitheliomatous or sarcomatous in structure, the former usually occurring in patients of advancing years, the latter among children and adolescents. Of the two forms, sarcoma is the rarer. Sarcoma may attack the external or the internal ear, or it may involve the auditory apparatus by extension from some neighboring organ; *e. g.*, parotid gland, dura mater, etc. It may follow in the wake of long-continued suppuration, or it may, and usually does, according to Schwartze, attack a previously healthy ear.

The diagnosis of the affection can usually be made only by means of the microscope. Frequently middle-ear sarcoma appears in the form of a polypus which, after removal, returns rapidly, bleeds freely, and so rouses the suspicion of the surgeon that something more than a mere inflammatory growth is present. In the two following cases suppuration had lasted for years, attacks of spontaneous hemorrhage had been frequent, while the appearance of the growth—ashy gray and fleshy-looking—made it probable that it was malignant in nature. Confirmation of this suspicion was established by means of the microscope.

CASE 1.—S. M., female, aged sixty-three, was seen in consultation on account of the presence of a fleshy growth in the right external meatus. She stated that for many years she had had a discharge, but was unable to say exactly how long it had lasted or what the exact cause of the suppuration had been. For the preceding two or three years there had been frequent attacks of spontaneous hemorrhage, and during the time she had gradually lost weight and strength. Her previous general health had been good, and there was nothing of any special note in her family history. Upon examination the right external meatus was found blocked by a fleshy growth which, when touched by the probe, however gently, bled freely. Extensive caries of the surrounding bony parietes was present. The hearing power upon the affected side was nil, and the tuning-fork, placed upon the bridge of the nose, was heard best upon the same side. Facial paralysis of the right side of the face was present, and the various muscles supplied by the nerve had undergone secondary degeneration. The sense of taste upon the right side of the tongue was also completely absent. The patient complained of frequent and severe pain over the right temporo-sphenoidal and right occipital regions, although no pain was complained of upon percussion. The age of the patient, the appearance of the growth, the frequent attacks of spontaneous hemorrhage, and the statements made as to the slight progressive loss of weight made it probable that the growth was malignant in nature. A small portion of the growth was removed for microscopic examination. This was accomplished by means of a cold wire snare, and was immediately followed by a profuse hemorrhage—the blood pouring from the cut surface of the growth in a constant stream. The meatus was immediately packed with dry iodoform gauze, but the hemorrhage was not arrested till after free searing of the cut surface with a galvano-cautery point. Microscopic sections of the growth showed it to be an angio-sarcoma of a very vascular type. (See Fig. 1.)

CASE 2.—E. B., female, aged eighteen, had suffered for seventeen years from suppuration of the left middle ear, brought on as the result of an attack of scarlet fever when aged one year. The right ear had been completely destroyed from the same cause, and the patient to all intents and purposes was a deaf-mute. Her general health had been good, and the family history presented nothing of a special nature. Her father and mother were alive and healthy, and her brothers and sisters also enjoyed perfect

general health. During the preceding six months the left external meatus had been observed to be blocked by some fleshy-looking substance, while frequent and severe pain had been complained of in and around the ear. In addition it was stated by the mother that the girl had lost weight, and had become very apathetic. When first seen, the following condition was noted: The left external meatus was blocked by a fleshy-looking vascular growth. Palpation with the probe revealed the presence of deep-seated caries. The tissues over the corresponding mastoid process and in front of the meatus were puffy and œdematous. The watch, when pressed against the left auricle, was just heard, and the tuning-fork, placed upon the bridge of the nose, was referred to the left ear. No facial paralysis was present. It was decided to attempt radical removal of the growth, and accordingly a few days subsequently the patient was placed under chloroform, and the auricle detached and lifted forwards on to the cheek. The external meatus was found completely blocked by a mass of growth which apparently sprang from the inner wall of the middle ear, and which spread forwards under the parotid gland and into the mastoid cells. As much of the growth was removed as was possible—the scraping out being continued until the internal carotid artery was exposed. Very free hemorrhage took place during the manipulation, but was controlled by tight packing with iodoform gauze. The patient recovered rapidly from the effects of the operation, but, as would be expected, recurrence took place within a very short time. Microscopic sections of the growth showed it to be a myxo-sarcoma of a fairly vascular type. (Fig. 2.)

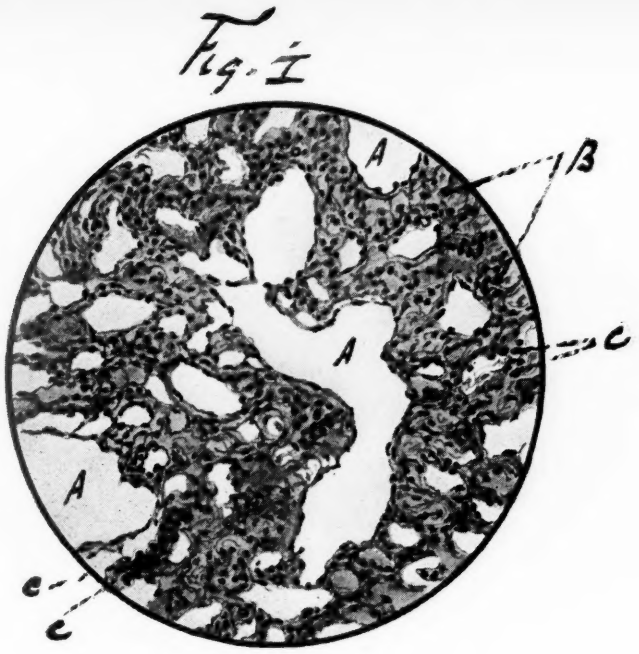

FIG. 1.

Description of Plate.

A. A. Large blood-vascular spaces.
B. B. Trabeculæ of fibrous tissue.
C. C. Groups of round cells (medium size).

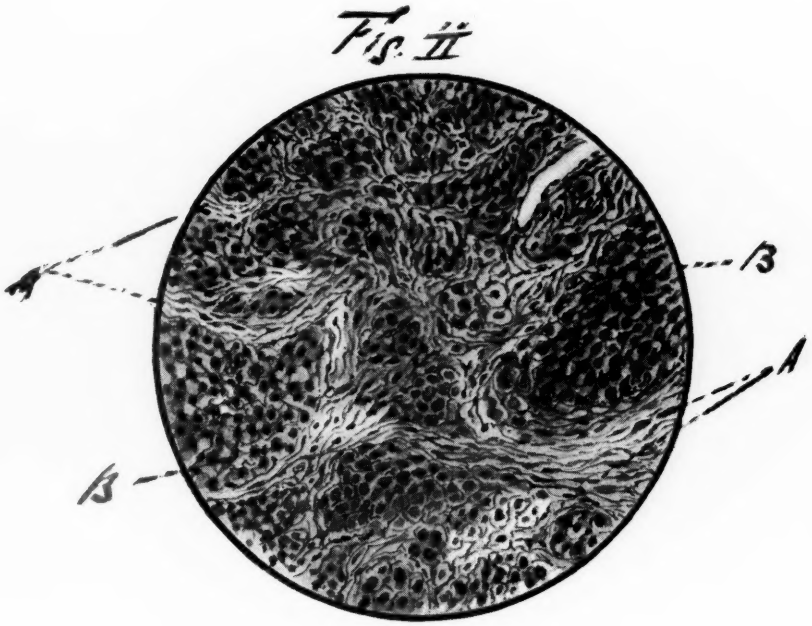

FIG. 2.

Description of Plate.

A. A. Bundles of mucoid connective tissue.
B. B. Groups of cells showing a metamorphosis into large round (sarcomatous) cells.

A CASE OF TEMPORO-SPHENOIDAL ABSCESS SECONDARY TO ACUTE LEFT-SIDED SUPPURATIVE MIDDLE-EAR DISEASE; OPERATION; ACUTE HERNIA CEREBRI; DEATH.

By W. MILLIGAN, M.D.,

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INTRACRANIAL abscesses of otitic origin are in the vast majority of cases secondary to *chronic* suppurative middle-ear disease.

As comparatively few instances of intracranial abscesses secondary to *acute* otitis media have been put on record, the notes of the following case may be of interest.

F. M., male, aged forty-eight, had enjoyed good general health up to March, 1895, when he contracted a severe attack of influenza. He was laid up for a few weeks, after which he returned to his work—that of foreign correspondent to a large commercial firm—and remained on duty until September of the same year. About this time his left ear became suddenly painful, and a profuse purulent discharge made its appearance. He was troubled with constant pulsating tinnitus and with a marked degree of deafness. For three months he remained under the care of his ordinary medical attendant, during which time various forms of local treatment were tried. Pain in and around the ear and over the corresponding side of the head was so continuous and severe as to practically incapacitate him. When first seen upon Dec. 6, 1895, the following notes were made: "The patient complains of intense pain in the head, especially over the frontal region. This pain is aggravated by any movement of the head and especially by percussion. His mental condition is distinctly

apathetic and his cerebration is slow and sluggish. He exhibits in a marked degree the condition of sensory aphasia or word-deafness, while, in addition, motor aphasia is present, although to a less marked degree. There is extreme ptosis, and the left pupil is dilated. The left optic disc is swollen and its edges are fluffy. There is left facial paralysis, but no apparent paresis of arm or leg. The external meatus is partially occluded owing to prolapse of its postero-superior wall. The membrane, so far as can be seen, is congested and broken in its postero-superior segment by a small perforation. With the watch the hearing power upon the affected side is nil ; upon the opposite side it appears to be normal. The tuning-fork placed upon the vertex is best heard in the affected ear. The temperature is 98.8° F., the pulse 66. During the preceding few days his wife says that there has been incontinence of urine and fæces. She also states that for a week he has had hardly any sleep on account of the severe pain in his head, which he constantly clutches between his hands and complains of." Immediate entrance to hospital was advised, but the patient was not brought for admission until two days subsequently. When admitted he was quite unconscious. Immediate operation was advised and was performed within a few hours. A disc of bone $\frac{3}{4}$ of an inch in diameter, with its centre $1\frac{1}{2}$ inches above and $1\frac{1}{2}$ inches behind the middle of the external auditory meatus, was removed with the trephine. The brain was found to be bulging and pulsation was absent. A small opening was now made into the dura mater and a pointed director was thrust into the substance of the temporo-sphenoidal lobe in a direction downwards and forwards. After penetrating the cerebral substance for about $\frac{3}{4}$ of an inch pus was seen to well up along the groove of the director. A pair of fine sinus forceps was immediately thrust into the abscess cavity along the groove of the director and the track in this way considerably dilated. In all about 4 drachms of perfectly odorless pus was evacuated. The abscess was at once irrigated with a 1-in-60 warm carbolic lotion. A soft rubber drainage-tube was inserted and the parts dressed in the ordinary way. The temperature, which at the time of operation had been 101° F., fell by 6 A.M. the next morning to 97.8° F., and the pulse from 108 to 82. During the first few days after the operation the patient made good progress, his temperature remaining, however, somewhat subnormal and his pulse varying from 90 to 100. Six days after the evacuation of the abscess it

was decided to open and drain the mastoid antrum. This had purposely been delayed owing to the critical condition the patient was in when first admitted. Upon opening the antrum no pus was found, but everywhere the mucous membrane lining the mastoid cells was intensely congested. The wound was accordingly at once closed and healed rapidly. From the middle of December to the end of January the patient made good progress and was able to move about the ward. About this time, however, a hernia cerebri began to make its appearance and increased with amazing rapidity. The patient's temperature rose to 103° F. and remained about this for some days. The wound was accordingly reopened and a director passed forwards and downwards in the direction of the previous abscess cavity, but no pus was found. The patient became rapidly worse and showed all the symptoms of advancing basal meningitis. Death took place upon February 8th, just two months after his admission to the hospital. At the post-mortem examination, which was made twelve hours after death, the abscess cavity was found empty and partially shrunken. Diffuse basal lepto-meningitis, evidently of recent origin, was found to exist. The dura covering the tegmen tympani appeared quite healthy. No erosion of the roof or parietes of the middle ear could be seen, and no suppuration existed within the mastoid cells. Apparently the pathogenic organisms had been carried direct from the middle ear to the interior of the temporo-sphenoidal lobe by way of the lymphatics or small venous radicles, no bone lesion intervening.

A NEW METHOD OF DEALING WITH THE EXTERNAL MEATUS IN OPERATIONS ON THE MASTOID.

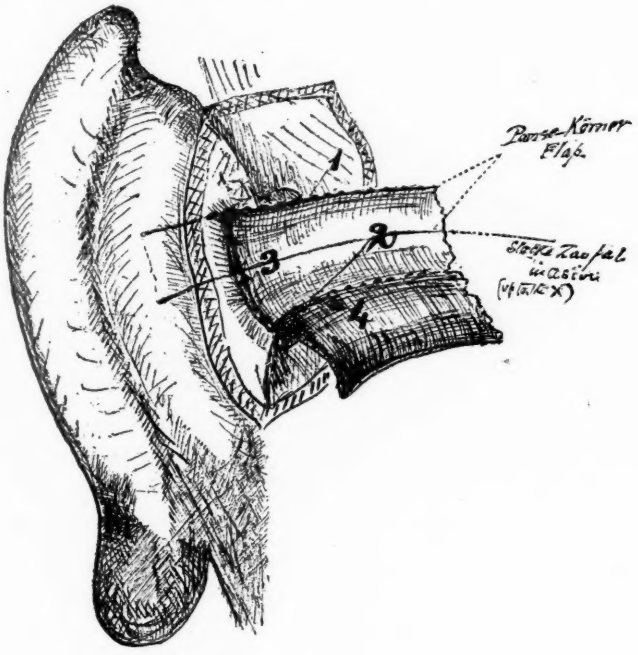
By RICHARD LAKE, F.R.C.S., Eng.

(*With one figure.*)

As it almost needs an apology for offering a modification or new method of performing a plastic operation on the external meatus in operations on the mastoid antrum, I offer the following reasons for placing this before the profession. None of those now before us fulfils all requirements: (1) a good cosmetic result; (2) the best use of the tissues at our disposal; (3) absence of any tendency to contraction of the meatus afterwards.

Briefly to sketch out the evolution of our present operation from that time when Stacke conceived the idea of throwing the attic, antrum, and tympanum into one common cavity, instead of merely draining the antrum as if it were a bone abscess; Stacke at the same time removed the ossicles and any remnants of membrana tympani left, thus removing a fruitful source of recurrence of the mastoid disease. The next step towards an ideal operation was Zaufal's, by which he removed the *entire* superior-posterior wall of the bony meatus, and was consequently the first to touch the external cartilaginous meatus; this was divided by him along its posterior-medial aspect (see fig.). After Zaufal's came the operation as at present usually performed, and named after its two independent inventors, Panse-Körner. The two long and slightly curved lines in the figure show the incisions used for this method; this included portion of external mea-

tus was made to line the posterior and external part of the cavity, and was either held in place by plugging through the enlarged external meatus, or by stitches through it and the edge of the mastoid wound. Now there are several slight modifications of this operation at present used—thus Politzer stays his incisions short of the concha to preserve the form of the orifice of the meatus. Moll finds the flap unsatisfactory, and advocates its entire removal, etc.



1. Superior Incision.
2. Inferior "
3. External "
4. Meatal Flap.

} In New Method.

The operation I suggest in exchange, at all events fulfils the conditions required according to my original premise, and is carried out thus:

The external cartilaginous meatus is thrown forward in the same manner as in the Panse-Körner operation; a speculum is then pushed into it, though this is not necessary. The incisions 1, 2, 3 in the diagram are then made thus: No. 1, longitudinally along the superior mesial part of the canal.

No. 2, along the inferior mesial line, parallel to No. 1, and these two incisions passing through the cartilage of the meatus only, and being joined at their outer extremities by No. 3, just at the junction of the concha and meatus; the included cartilage is removed. Incisions through the *skin* of the meatus are now made along the lines Nos. 1 and 3, and a flap is thus formed as is shown by No. 4 in the diagram. The meatus is next replaced, and the post-auricular incision sewn up or not, according to the custom of the operator. The flap No. 4 will now be found to accommodate itself to the floor of the cavity, which it will do as the resilient cartilage is removed. The cavity is plugged, but there is no necessity or object to be gained by using any pressure. As far as I have used this method, I have been extremely gratified with the result.

THE "MASTOID" ANTRUM A PART OF THE MIDDLE EAR.

By ARTHUR H. CHEATLE, F.R.C.S.,

SURGEON TO THE ROYAL EAR HOSPITAL, AND SENIOR CLINICAL ASSISTANT TO THE AURAL DEPARTMENT, KING'S COLLEGE HOSPITAL.

(*With three cuts in the text.*)

THIS cavity is described as part of the mastoid process, although on examining its formation in fœtal life it can clearly be seen that it is a definite and regular part of the middle ear, whereas the mastoid process does not even begin to make its appearance until the end of the first year, being a structure entirely apart from, but having a close anatomical relationship with, the antrum.

The fœtal temporal bone can be easily separated into three parts—petro-mastoid, squamo-zygomatic, and tympanic ring; the petro-mastoid being divided into petrous and mastoid by an entirely arbitrary and imaginary line passing vertically through the bone close behind the stylo-mastoid foramen, the portion anterior and internal to this line being petrous, and that posterior and external being mastoid. According to this division the antrum is formed in the mastoid portion, but as the cavity is formed as part of the middle ear, it seems superfluous and absurd that an imaginary line should cut off a part of the tympanum, and necessitate its description along with a portion of bone which has nothing to do with the formation of the middle ear.

On looking at the petro-mastoid portion of a fœtal temporal bone, say at six months, a recess is seen behind the incus, continuous with the inner tympanic wall, smooth and

slightly overhung by the posterior part of the tegmen tympani, which anteriorly forms part of the roof of the middle ear.

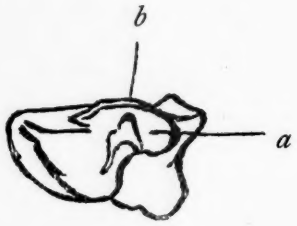


FIG. 1.—Petro-mastoid portion of temporal bone. Sixth month fœtus. Left.

This recess is the inner wall of the antrum (*a*), and is converted into a cavity by the juxtaposition of the tegmen to the posterior part of the outer plate of the horizontal por-

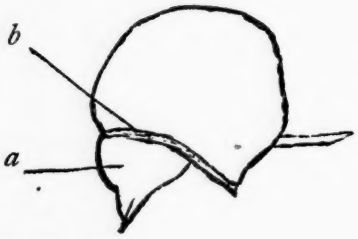


FIG. 2.—Squamo-zygomatic portion of temporal bone. *b*, Tegmen. Sixth month fœtus. *a*, Part which forms outer wall of antrum. Left, looked at from inside.

tion of the squama (*b*); this outer antral wall, smooth at six months, becoming cellular at about eight months.

The rough sketches are taken from some of my own specimens, the method of formation of the antrum being constant in all.

At birth the antrum is large enough to hold a small pea, is lined with the same membrane as that lining the middle ear, having a smooth inner wall, a cellular outer wall, and a roof formed by the junction of the posterior part of the tegmen with the posterior part of the edge of the inner plate of the horizontal squama, Fig. 2 (*b*), the former overlapping

the latter forming the posterior part of the petro-squamous fissure, in which is lodged a process of dura mater; the cavity opening into the attic by a large triangular opening with the base uppermost. So that the antrum is fully formed during fœtal life long before the mastoid process has begun to make its appearance from the mass of bone below and behind the antrum, the process being needed for the attachment of muscles, and becoming cellular later in life for the purpose of lightness. The function of the antrum is still a matter of conjecture. Evidently it must have some

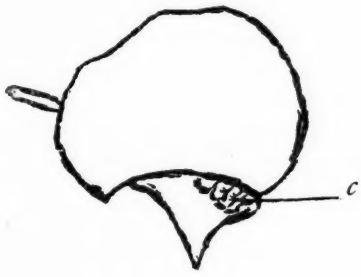


FIG. 3.—Squamo-zygomatic portion of temporal bone. Eighth month fœtus. Right: showing outer cellular antral wall *c*.

function in connection with the middle ear, or its presence would not be so constant as it is. Although not present all through the animal kingdom, the cavity is well marked and constant in monkeys. In fowls it is represented by the upper tympanic recess. In the crocodile these upper tympanic recesses meet above the occipital arch.

The points which I wish to urge are:

(1) That the antrum is a regular part of the middle ear, as seen by its formation, and as such is wrongly described as "*mastoid*" *antrum;* the name *tympanic antrum* would be more accurate, serving to disassociate it from the mastoid process and to define it as part of the middle ear.

(2) That as it is part of the middle ear, the imaginary division of the petro-mastoid into two parts is anomalous; and it would be better to describe the petro-mastoid as one bone.

ON THE PRESENT STATE OF THE VARIOUS TESTS FOR HEARING.[1]

By Prof. BEZOLD, of Munich.

Abridged translation by Dr. J. A. Spalding, Portland, Me.

ALTHOUGH practical needs have compelled the aurist again and again to seek for further means of testing the hearing, it would be looking at the subject from too narrow a point of view, were we to see in our determination of the amount of hearing nothing more than a perfection of the morbid picture, and a verification of the results obtained by treatment.

The function of the organ whose testing and care lie in our hands has attracted the attention of our most learned thinkers. But it has generally been given to the aurist to determine its average capacity, its limits for various tones, and, above all, for the human speech. Moreover, equally interesting as the function of the normal ear is that of the pathological, provided that we can decide what portions in the latter are to be eliminated owing to destruction and disease. The aurist is the only one in a position to collect observations, which, as a whole, give us an idea of both the function and the individual parts of the ear. Hence we should never forget that we are collecting material which can be more useful than to the aurist alone, and from that point of view we must carry out our tests.

As the ear possesses the capacity of differentiating every source of sound into its various elements (tones), we must assume a mechanical apparatus, which is found at the termi-

[1] A paper read before the German Otological Society, in May, 1896.

nation of the auditory nerve, and repeated observations localize the scale for tones in the membrana basilaris of the cochlea, just as Helmholtz originally described it.

Entire series of tones were of no use to us until we ceased to think of noises as different from impressions of sound. The separation of noises from tones long hindered the development of otology, because it gave rise to the idea of a separate region for the perception of noises outside the cochlea, in another portion of the labyrinth.

This is not the place to discuss all the papers on this topic, but I venture to refer to Barth's "The Theory of Tones and Noises,"[1] in which he demonstrated the probable composition of all sorts of noises from portions of the scale perceptible by the human ear. With Barth, as with Dennert,[2] we can say that "no proof has yet been offered to show that noises and sounds are different qualities of vibrations, nor that the cochlea cannot resolve them."

The theory of the perception of vibrations as an exclusive function of the cochlea received new support when Kreidl[3] proved that goldfishes, which have no cochlea, were totally deaf. I too, in the human ear, have shown that no hearing exists after the exfoliation of the labyrinth. In some of my cases only part of the cochlea was exfoliated, but I do not lay stress on that, because I think that destruction of any part of the membranous portion is enough to destroy the function of the whole. I have also seen several cases of total deafness in *bilateral necrosis* of the labyrinth. Hence all of the tests made after destruction of this part of the ear show that the auditory nerve without its accessory apparatus reacts just as little to waves of sound, as the optic nerve without a retina to waves of light. One of the best and most rapid tests of hearing is the human speech, if particular attention is given to the consonants as ascertained by Wolff. He grouped his sounds into:

1. The deep, like R and V.
2. The middle, like the explosives B, K, T.

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[1] *Zeitsch. f. Ohr.*, xvii., p. 81.
[2] *Archiv f. Ohr.*, xxix., p. 83.
[3] Pflueger's *Archiv f. d. ges. Physiologie*, lxi., 450.

3. The high and strong, like S, SH, and G, and the high and weak, like F.

L, N, and H are excluded, as dependent on other tones [tone-borrowing].[1]

Instead of the consonants, I employ the words of numbers as test words. The objection raised, that they can be more easily guessed than other words, does not prevent me from using them. For, all other words can sooner or later be guessed by frequent repetition. To test with words of which the patient has no idea, may lead us astray. To test with the words of numbers is indispensable in children, as investigations in the schools have shown.

Equal intensity of sound can be obtained by using the residual air left after forced expiration, though care should be used to speak always at the *same tempo.*

Experience having shown that in certain definite forms of disease the same words are defectively perceived, it is plain that tests with speech may serve as a sort of diagnosis. For instance, the low tones in the words "one hundred" are worst perceived in affections of the conducting apparatus. On the contrary, in acute simple, as well as in perforative and exudative, inflammations of the middle ear, I discovered a characteristic loss for "fifteen" and "three." The loss of the word "seven" is also unfavorable in a prognostic point of view.

Just as "fifth" is often lost in acute exudative processes, so "nine" or "nineteen" are not well heard in uncomplicated closure of the tubes.

The greatest auditory defects are found in diseases of the labyrinth, associated or not with affections of the middle ear. One word, "seven," is characteristically dulled, as well as others, generally heard at some distance. "Fifth" and "three" are ill perceived.

Familiarity with the details of the perception of the voice in various diseases of the ear is important in the *discovery of simulation*, of which we hear a good deal since the introduction of accident insurance.

To test speech thoroughly, being laborious and taking

[1] Compare these ARCHIVES, xix., p. 298.

much time, it is quite sufficient in most cases after testing a few words to note the distance for those perceived with the greatest difficulty, as suggested by Lucæ. For this reason I have of late abandoned the use of the watch, of the various audiometers, the telephone, and musical instruments.

The distance at which a whisper or low voice is heard is justly regarded as a most useful test of hearing.

So many methods of testing have been brought forward of late that a proper limitation of the most accurate has become one of the most difficult of tasks for the aurist, and we need not be surprised that the test for bone-conduction has been criticised as too complex for accurate results. With this view, however, I cannot agree, for even Weber's test, and still more Rinné's and Schwabach's, assure a differential diagnosis between similar forms of disease, not to be obtained in any other way. To abandon these tests would cause otology to retrograde many a decade, to say the least.

The idea so often expressed, that the test for B. C. in advanced years is useless, is not only unjustifiable in a physical point of view, for the bones do not change in age enough to account for loss of conduction of sound, but it can even be easily shown that objectively visible acute or chronic middle-ear diseases show prolonged B. C. in the aged as in the young.

My observations in this respect show[1] that B. C. does not *per se* diminish in old age, but the perception of it is reduced in proportion to the gradual impairment of the whole faculty of audition. In one hundred and thirty-four aged patients tested with *a'*, I found normal duration of B. C. in forty-five per cent. and increased in twelve per cent. Moreover, we must not forget that in this list there was not a single case of middle-ear inflammation, which even in the aged as in the young prolongs B. C., provided that the hearing had not previously been less reduced than in proportion to the age of the patient. The occasional shortening of B. C. in similar cases signifies the same pathological alterations in the middle-ear as at other periods of life.

[1] These ARCHIVES, xxiii., p. 214.

If we extend our B. C. tests to the higher forks, we meet with a source of error which increases with the pitch of the tone, because simultaneous *conduction through the air* is less to be excluded the higher we go in the scale.

So, too, owing to the concussion of lower forks, we may abandon them in testing the lower end of the scale, because simple concussion induces many errors, as I have shown in deaf-mutes.

The most satisfactory forks to use are the A and the *a'*, with occasional use of middle *a*.

My reasons for this belief are that the duration of B. C. is best tested with the large unclamped A, because it is heard from the skull long after its vibrations have become imperceptible to the feeling. In pure affections of the conducting apparatus, the prolongation of B. C. beyond the normal duration increases with the depth of the fork employed. Nevertheless, the test for *duration* with the higher fork is useful at times, because in the sclerotic forms of ear disease we find shortening or loss of this very tone by B. C., whilst the lower fork A is still heard prolonged.

Weber's test should always be made with one fork, *a'*, and, if possible, on the same spot on the skull. It is most decisive and accurate in acute exudative processes of the middle ear, and may be said at times to be an arbiter of life or death. For when in middle-ear suppurations the former perception of the fork in the diseased ear ceases, and it is no longer heard by A. C., this is an indication for opening the middle-ear cavities, because the symptoms indicate invasion of the labyrinth and danger to life.

In Rinné's test I employ the *a'* fork, which, after dying out on the mastoid, still vibrates for thirty seconds before a normal ear. Lucæ uses a *c* fork, but I prefer the *a'* because it lies in the centre of the scale of tones, and within the vocal region of the same. Higher forks than *a'* are not advisable, because we cannot exclude the chance that they may also be heard by aërial conduction.

The diagnosis of slight degrees of anchylosis of the stapes in pronounced unilateral sclerosis can be made by Rinné's test, showing shortened positive or negative result even in

the opposite ear, despite the fact that the hearing for speech on this same side is normal or nearly so.

In exudative processes and swollen conditions in the middle ear, on the contrary, Rinné is always positive though shortened, despite a relatively high degree of deafness for the voice. Hence we see that its result is dependent on other physical causes than in simple fixation of the ossicles, of which chronic suppuration and sclerosis form the prototypes.

When *one* ear is very deaf and the other about normal, we cannot make a diagnosis from a shortened positive or negative Rinné, whilst a decidedly positive result is valuable from this point of view. Schwabach's test may also be looked upon as reliable in these cases, provided that it shows decided prolongation of the bone-conduction.

I will here state that in the tests now under consideration, only those diseases are considered *which permit of a distinct diagnosis. Especially is it the chronic middle-ear suppurations and their residua, with large perforations in the Mt, in which we can assume well-marked fixation of the conducting apparatus owing to preponderance of the tens. tymp., to say nothing of all the other alterations in the case. And those it is that give us the purely functional picture of disturbance of conduction.* In such conditions Schwabach notes a negative Rinné, even when the deafness is slight. Brunner,[1] too, speaks of the constancy in the results of Rinné's and Schwabach's tests, together with defects in the *lower tone scale, but with preservation* of the upper, as a "lantern and guide along the oftentimes doubtful path of the functional tests for hearing."

So, too, in simple tubal affections which affect the conducting apparatus on one side only, Siebenmann has invariably obtained a functional picture of obstructed conduction.[2]

A clearer picture still can be found after traumatic rupture of the *Mt*, in which my investigations show[3] all the

[1] These ARCHIVES, present volume.
[2] These ARCHIVES, xxii., p. 12.
[3] "Traumatische Perforat. d. Trommelfels," these ARCHIVES, xxii.; and Spitter, "Traumatische Perforat. d. Trommel.," *Inaug.-Dissert.*, Munich, 1895.

characteristics of fixation of the conducting apparatus. Rinné's test, in correspondence with the slightly diminished hearing for the voice, is positive but shortened. When the *Mt* is restored to its integrity, the symptoms are absent.

The few people with perfect hearing that can voluntarily contract their tens. tymp. are excellent subjects for deciding the influence of the isolated tensor. One medical friend possessed this faculty in such perfection that at every contraction of the muscle we could see the light spot vibrate.

The hearing of this gentleman, being normal, showed but two alterations during the voluntary tension: the lower-tone limit was brought from A to E, and the fork A was heard eighteen seconds longer by B. C.

If the whole conducting apparatus, except the stapes with its tendon and the lig. annul., is destroyed, the latter is tightened by the stapedius, and we find well-marked symptoms of fixation of the conducting apparatus. If now the same functional disturbances are met with in an intact *Mt* and an empty tympanum, as in sclerosis, we are justified in diagnosticating fixation at the more active portion of the conducting apparatus, namely—at the foot-plate of the stapes. In five cases, examined *post mortem*, I found calcification or partial ossification of the lig. annul.[1]

The series of clamped tuning-forks which I now employ in testing the hearing extends from A to c''', divided between ten forks with about a fifth between. This gives greater uniformity in the intensity of the tone than by any former apparatus. From c'' to c''' I use organ pipes and a modified Galton's whistle, with a micrometer screw to change the width of the orifice, by means of which the sound can be heard at such a distance that the blowing is inaudible. The highest note produced by this whistle is 55,000 double vibrations a second.

The discovery of defects for A. C. in middle-ear diseases which disturb the equilibrium of the conducting apparatus, led me to search for a series of tones complete at the *lower end of the scale*. Or, as Lucæ says: "If the low tones are

[1] These ARCHIVES, xxiii., 48; xxiv., p, 67; and xxv., p. 127.

heard until they die out, we can exclude important alterations in the conducting apparatus."

Long ago it was observed by Wollaston,[1] and confirmed by J. Mueller,[2] that deafness artificially produced by tension of the *Mt* during forced inspiration with closure of the mouth and nose, is not the same for high and low tones, but only for the high.

Once in possession of a continuous tone-series, I have in all cases of disturbance of the balance of the conducting apparatus not only demonstrated increased duration of B. C., but shortened perception of A. C. at the lower end of the scale. Thus we find, according to the degree of deafness, a varying district in the *lower limit of tones entirely lost*, and by means of the continuous tone-series we can determine exactly from which tone downwards the defect exists.

The only exception is in acute exudative processes with secretion into the tympanum, as I have mentioned and given reasons for, in all of my papers on this topic.

Examination for the lower limit of tones is only absolutely sure, when we close the eyes and state the moment at which the fork approaches the ear. If so performed, it surpasses in accuracy the measurement of waves of sound by Rinné's test and by the duration of bone- and air-conduction in the audible part of the scale.

When the upper limit of tones does not sink after removal of the *Mt*, hammer, and anvil, we see that an intact chain of ossicles is not necessary for the conduction of the high tones. On the contrary, the stapes seems to play the chief role in such conditions. This conclusion is forced upon us by the fact that, after extraction of the stapes, the upper limit for Galton 1.7 sank to 2.3, whilst "Seven" and "Fifteen" were poorly perceived.

When the upper limit of tones is much reduced, we may incline to the idea that the beginning of the scala is implicated, and occasionally an autopsy gives us an opportunity to verify this view.[3]

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[1] *Philosoph. Transact.*, 1820.
[2] *Physiologie*, ii., p. 437.
[3] These ARCHIVES, xxv., Plate I., Fig. 1.

V. Troeltsch once suggested that many so-called cases of sclerosis would in time reveal themselves under anatomical investigation as cases of fixation of the stapes alone, and that this condition would be recognized as a special form of ear disease. Since then numerous investigations by Politzer have verified the suggestion, whilst my most recent statistical papers show [1] the unity as well as the functional and symptomatic picture of the disease.

I cannot now enter deeply into the complex functional symptoms of diseases beyond the middle ear. Before being able to diagnosticate inner-ear diseases, we had to know all of the symptoms characteristic of the pathological alterations in the conducting apparatus. Since these are physically produced, they must always be present, and I am quite sure that each identical symptom has been proven.

The loss of a district at the lower end of the scale of tones: The simultaneous elongation of B. C. for the lower tones; well-marked positive Rinné with relatively good hearing, and a negative Rinné with greatly reduced hearing (provided that the other ear is not quite normal); each of these tests by itself seems affirmative, provided that we can exclude deception on the part of the patient. And all that we test in these experiments is always the same. The directly antagonistic relation between A. C. and B. C., which shows itself all the more closely the lower we go in the scale of tones.

It seems to me, in the question of diseases of the inner ear, that too great stress has been laid on the exclusive loss of *high tones*, whilst rather we find abbreviation in the duration of the hearing, or total defects at every portion of the scale, whilst each defect proves a disease of the inner ear, if at the same time B. C. also is abbreviated or lost.

Great interest attaches itself in middle-ear disease to the *uniformity* with which the hearing of A. C. decreases at the lower end of the scale down to the spot for which it ceases entirely, as we see in Werhowsky's recent paper,[2] in which the purely mechanical effect of disturbances in the conducting apparatus is fully illustrated.

The examination of deaf-mutes has opened up to us

[1] These ARCHIVES, xxiv., 234.
[2] Present volume of these ARCHIVES, p. 152.

an unexpectedly rich field in the diseases of the inner ear, auditory nerve, and cerebral auditory centres. The defects discovered are to be regarded as sharply defined types of but little known diseases, and may serve as a basis for a series of functional disturbances of hearing.

Another question to discuss is, whether we can determine *deafness* by our present tests for hearing. Here we have to differentiate between deafness for speech (in which there may be hearing for tones), and absolute deafness for both voice and tone. When the voice is no longer heard, tones may still be audible. But so far as practical life is concerned, the total loss of perception of speech must be regarded as deafness which we can consider as a deafness relative to absolute deafness to all impressions of sound.

Examination of deaf-mutes with a continuous series of tones shows a small definite zone in the scale, the loss of which is followed by deafness for the voice.

Relative and absolute deafness are easily discovered when bilateral, but unilateral deafness is difficult to establish, especially, absolute deafness for a portion, at least, of the scale, because the aërial conduction of tones at the lower end of the scale is entirely different from that of tones at the upper limit. From the lowest forks upward, to c' the vibrations are so slight by the air that the other ear need not be closed at all. For the next octave up to c'' the moistened finger into the meatus of the good ear suffices to exclude it from the tones. In other words, for the lower five octaves the continuous series of forks is enough to establish total unilateral deafness. But the higher we ascend beyond c'' the more difficult it is to exclude the good ear. So that for the highest tones we shall have to rely on the average obtained in a long series of patients, the good ear being hermetically closed.

My examinations of several cases of unilateral deafness for aërial conduction in unilateral loss of the labyrinth has proved that that portion of the scale is lost, which, as experience has shown, cannot be heard by the occluded ear, namely, the entire lower half, at least, so high as to c''.

The results of my tests in two cases of total unilateral

operative removal of the labyrinth, with perfect hearing in the other ear, were as follows:

Mr. G., fifty-four; left cochlea removed, November 3, 1883. Test March 4, 1896.	Mr. D., fifty-three; part of left cochlea removed, January, 1895. Test September 30, 1895.
Right ear normal.	Right ear normal.
Whisper..... 6 M. Lower limit..... 16 vibrations. Upper limit....Galton, 0.9 (Normal Galton, 0.8.)	Whisper..... 6 M. Lower limit..... 16 vibrations. Upper limit...Galton, 0.9 at 4 *cm.* (Normal Galton, 0.8 at 4 *cm.*)
Left-ear test; cochlea removed.	Left-ear test; cochlea removed.
Forks from $A^{II\cdot}$ to $a' = 0$. Fork a'' — 60 seconds : 0.17 f''' — 23 " : 0.3 c'''' — 42 " : 0.4 $f\#''''$ — 14 " : 0.5 Upper limit for Galton's whistle, 1.1.	Forks $A^{II\cdot}$ to $a' = 0$. Fork a'' :— 58 seconds — 0.19 f''' — 25 " — 0.24 c'''' — 37 " — 0.47 $f\#''''$ — 12 " — 0.57 Upper limit for Galton's whistle, 1.2.

These figures give us an approximate idea of the tones of various pitch, which can pass across from an absolutely deaf ear, to the firmly occluded normal ear, and we here possess a reasonably safe method of fixing absolute deafness for the upper portion of the scale with a normal second ear.

REPORT ON THE PROGRESS OF OTOLOGY DURING THE FIRST QUARTER OF THE YEAR 1896.

By Dr. ARTHUR HARTMANN, Berlin.

Translated by Dr. C. Zimmermann, Milwaukee, Wis.

PATHOLOGY AND THERAPEUTICS.[1]

MISCELLANEOUS.

1. Stetter, Dr. Prof. Seventh annual report of the Ear, Nose, Throat, and Mouth Dispensary, from Jan. 1, 1895, to Jan. 1, 1896. *Monatsschrift für Ohrenheilk.*, No. 3, 1896.

2. Corradi. The patients treated in the oto-rhino-laryngiatric department of the hospital in Verona in 1894. *Archivio ital. di Otol.*, vol. iii., p. 154.

3. New York Eye and Ear Infirmary. 75th Annual Report, 1895. Ear Department. Drs. Hickok, Bacon, Dench, and Adams.

4. Manhattan Eye and Ear Hospital. 26th Annual Report, 1895. Ear Department. Drs. Roosa, Hepburn, Emerson, Nichols, Pomeroy.

5. New York Ophthalmic and Aural Institute. 26th Annual Report, 1895. Ear and Nose Department. Drs. Knapp, Toeplitz, and Vulpius.

6. Brooklyn Eye and Ear Hospital. 27th Annual Report, 1895. Ear Department. Drs. Matthewson, Prout, Sheppard, and Alderton.

7. Massachusetts Charitable Eye and Ear Infirmary (Boston). 70th Annual Report, 1895. Ear and Nose Department. Drs. Blake, Green, Spear.

[1] Anatomy and Physiology of this quarter will appear with the second quarter in the next number.

8. NEWARK CHARITABLE EYE AND EAR INFIRMARY. 16th Annual Report. Drs. C. J. Kipp, William Rankin, and others.

9. BALTIMORE PRESBYTERIAN EYE, EAR, AND THROAT CHARITY HOSPITAL. 18th Annual Report, 1895. Drs. J. J. Chisolm, H. Woods, H. Harlan, F. M. Chisolm, J. R. Winslow, C. W. Hartwig.

10. NEW YORK OPHTHALMIC HOSPITAL (HOMŒOPATHIC). 44th Annual Report, 1895. Ear Department. Drs. H. C. Houghton, C. E. Beebe, G. A. Shephard, J. D. Lewis, and others.

11. THE HARLEM (N. Y.) EYE, EAR, NOSE, AND THROAT INFIRMARY. 14th Annual Report, 1895. Dr. R. E. Swinburne.

12. PAPALLE. Statistical report on the free clinic for diseases of the larynx, ear, and nose of Dr. Lichtwitz. Bordeaux, 1896.

13. NEW AMSTERDAM EYE AND EAR HOSPITAL. 7th Annual Report, 1895. Ear Department. Drs. Pooley, Myles.

14. HOLINGER, J. Asepsis and antisepsis in otology. *Journ. Amer. Med. Assoc.*, Jan. 18, 1896.

15. EWING, FAYETTE CLAY. The treatment of aural catarrh in the London Central Throat, Nose, and Ear Hospital. *Journ. Amer. Med. Assoc.*, Feb. 29, 1896.

16. LAURENS, G. Anæsthesia by guaiacol oil in otology, laryngology, and rhinology. *Ann. des mal. de l'oreille*, etc., Jan., 1896.

17. STOHER, G. Oxygen gas in the treatment of ozæna and purulent middle-ear disease. *British Med. Jour.*, Feb. 1, 1896.

18. TEXIER, V. A new method of employing ethyl bromide in otology and rhinology. *Ann. des mal. de l'oreille*, etc., March, 1896.

19. AGUANO, D. On paracusis Willisii. *Ann. des mal. de l'oreille*, etc., Feb., 1896.

20. SCHWAGER, Dr., Kaiserslautern. A case of noises in the ear objectively perceptible. *Monatsschr. f. Ohrenheilk.*, No. 2, 1896.

21. GERONZI, Dr. Hemiplegia of the facial nerve, of otitic origin. *Archivio ital. di Otol.*, vol. iii., p. 328.

22. BEZOLD, Prof. Results of pathologico-anatomical examinations of the ear in measles. *Muench. med. Wochenschr.*, 1896, Nos. 10 and 11.

23. BARNICK, O. Clinical and pathologico-anatomical contributions to tuberculosis of the middle and external ears. *Arch. f. Ohrenheilk.*, vol. xl., p. 81.

24. FERRERI. Anchylosis of the maxillary joint from ear disease. *Archivio ital. di Otologia*, vol. iii., p. 14.

25. HABERMANN, Prof., Graz. The syphilitic affections of the hearing organ. Jena, Gustav Fischer, 1896.

26. URBANTSCHITSCH, Prof., Vienna. On the reflex actions of the hearing organ on the motor apparatus of the eye. *Wien. klin. Wochenschr.*, 1896, No. 6.

27. GRASSMANN, K. Cases of acute cocaine poisoning. *Muench. med. Wochenschr.*, 1896, No. 6.

28. TREITEL. On hearing exercises after the loss of hearing. *Arch. f. Ohrenheilk.*, vol. xl., p. 123.

29. LEHFELD, ADAL, Director. Hearing exercises in the school for deaf-mutes, according to the method of Prof. Urbantschitsch. Vienna, 1895. Author's own publication.

30. LIEBMANN, ALBERT. Novel therapeutics of stammering. *Deutsche med. Zeitung*, No. 36, 1896.

1. STETTER removes the adenoid vegetations in some cases with the finger. He uses a pointed galvanocautery burner in treating hypertrophies of the turbinated bodies, making a canal, parallel to the surface of the turbinated bone, *between* the latter and the thickened mucous membrane. This procedure is not new, but recommendable. KILLIAN (Freiburg).

2. CORRADI'S report contains a remarkable case of carcinoma of the auricle, a case of traumatic abscess of the nasal septum, and some cases of rare affections of the soft palate.

GRADENIGO.

3. New patients, 5352; operations 546; incision of membrana tympani, 200; excision of ossicles, 6; polypi, 60; opening of mastoid, 50; operation for cerebellar abscess, 1; operation for epidural abscess, 1; removal of adenoids, 48.

GORHAM BACON.

4. New patients, 3334; incision of membrana tympani, 40; excision of carious ossicles, 5; excision of malleus for chronic catarrhal otitis media, 1; polypi, 30; opening of mastoid cells, 18; opening of lateral sinus, 2. G. BACON.

5. New patients, 2322; inmates, 27; operations, 438; incision of membrana tympani, 50; excision of carious ossicles, 4; polypi,

42 ; opening of mastoid, 19 ; removal of adenoids, 99 ; trephining, for cerebral abscess, 1. G. BACON.

6. New patients, 3162 ; operations, 188 ; incision of membrana tympani, 21 ; polypi, 14 ; excision of ossicles (carious), 19 ; excision of ossicles for chronic catarrh, 1 ; opening of mastoid, 23 ; trephining skull, 2. G. BACON.

7. New patients, 4946 ; inmates, 240. Incisions of the drum membrane, 279 ; mastoid operations, 77 ; adenoid operations, 91 ; removals of necrosed ossicles, 31 ; polypus operations, 126.

H. KNAPP.

8. Ear patients, 1256 ; nose patients, 453 ; operations, 181.

H. KNAPP.

9. Ear cases, 1943 ; nose and throat cases, 1494 ; ear operations, 161 ; nose and throat operations, 455.

H. KNAPP.

10. Ear diseases, 2395 ; operations, 69.

11. Ear diseases, 458 ; nose and throat, 473 ; operations, 148.

12. A short statistical report on 3595 patients, of whom 1516 had ear diseases, treated by Lichtwitz during the last five years. The middle ear was methodically irrigated through the tube. Operations were only performed when it was absolutely necessary in complicated affections of the middle ear (three times). Three illustrations demonstrate Lichtwitz's method of treatment of purulent affections of the sinuses.

ZIMMERMANN (Dresden).

13. New patients, 456 ; operations, 6 ; incision of membrana tympani, 2 ; polypi, 1 ; excision of ossicles, 1 ; Wilde's incision, 2.

GORHAM BACON.

14. The writer's conclusions are that :

(1) Every instrument should be so constructed that it can be easily cleaned and examined.

(2) Before every examination, the instruments (speculum, probe, catheter, middle-ear instruments) should be sufficiently boiled, and immediately after use they should be washed in cold water, so that the pus, mucus, and blood may not coagulate and dry on them. GORHAM BACON.

15. In this hospital, nitrous oxide gas is generally administered in the case of removal of adenoids. The curette is usually employed, followed by thorough scraping with the finger. When faucial tonsils are enlarged, they are removed with a Mackenzie guillotine. When the tonsils are very large, a cold wire snare is employed instead of the guillotine. After the operation, the

patient is kept indoors until the bleeding surface is somewhat healed. In the acute stage of otitis media, leeches are applied over the mastoid and in front of the tragus—supplemented by warm, wet cloths to promote bleeding and dispel pain. Poultices and blisters are never used. Instillations of morphine, two grains to the ounce, or a ten per cent. solution of cocaine are dropped warm into the ear. The membrane is incised if a collection of fluid is apparent behind the drum. The ear is inflated by Politzer's method, and kept clear by syringing with a mild boracic acid solution. In chronic non-suppurative cases, a few drops of the following solution are put in the inhaler attached to a Politzer bag, and the vapor forced into the middle ear; ℞ Chloroformi, ætheri acet. āā ʒ ii; spir. vin. rectif. ad ℥ i. Massage is employed in some cases by means of the Siegle pneumatic speculum.

GORHAM BACON.

16. Guaiacol oil, tried in a few cases, does not seem to show any advantage over cocaine. ZIMMERMAN.

17. At a meeting of the British Laryngological, Rhinological, and Otological Society held on January 19th, STHOER related the beneficial action of oxygen gas in two cases of ozæna, and in one of a purulent middle-ear discharge which had resisted all treatment. After nine weeks' treatment only a little watery discharge remained, the gas having been applied for three hours daily at intervals.

18. From physiological experiments and clinical experience TEXIER recommends the following method practised by Lermoyez and Helme. Five grammes of perfectly fresh ethyl bromide in children up to eight years (5 to 10 grammes in children until fifteen years, never more) are poured on a flannel mask all at once. The latter is held on the face for not more than 40 seconds. The eyes are left free, if the conjunctival vessels become injected and the pupils dilated—but after 40 seconds, at the highest, the time for the operation has arrived. Muscular tonus and reflexes remain unaltered, consciousness is eliminated for 30 to 50 seconds only. Contra-indications are tuberculous or inflammatory affections of the lungs, diseases of the heart and kidneys. ZIMMERMANN.

19. AGUANO discusses the various theories and reports his case, in which chronic otitis with diminished mobility of the *Mt* existed. This caused either a rigidity or interruption of the ossicular chain, or, perhaps, an alteration of the intrinsic muscles, which could only be influenced by an especially strong irritation.

20. A girl, aged fourteen years, who fell on the left side of her head, four years ago, perceived a snapping noise in her left ear ever since. It was arhythmic and could be heard objectively within 20 *cm* from the ear, 110 times per minute. The patient could suppress it voluntarily. It continued also during sleep. The soft palate, uvula and palatal pillars moved simultaneously. The noise apparently was caused by the walls of the tube being alternately separated and brought in apposition again by clonic spasm of the tensor tympani. SCHWAGER cites an analogous case of Kaufmann (*Monatsschr., f. Ohrenheilk.*, 1894, p. 141).

KILLIAN.

21. Detailed description of the relations of facial paralysis to otitis media. GERONZI reaches the conclusion that there are such relations in some cases, but not in all. GRADENIGO.

22. Although BEZOLD'S interesting investigations and results are chiefly contained in Schwartze's *Manual of Otology*, every aurist will read this article (read before the Munich Medical Society) with renewed interest, as it goes more into detail and brings some new points of view. To the investigations of Tobeitz and Bezold others of Habermann (7 cases) and Siebenmann (6 cases) are added, the results of which entirely correspond to the former. Bezold thinks that the diminished faculty of reaction during the acme of measles is the reason for the remarkably small reaction, which is found in measles, in spite of the constant presence of pyogenic organisms in the pus. This assumption would explain best the fact, that marked objective symptoms do not appear before the stage of desquamation. He saw a certain proof of this in a case of morbillar otitis with operative opening of the antrum for subperiosteal abscess, in which, with otherwise normal course, there was not any reaction on the denuded bone, *i. e.*, no injection nor formation of granulations, even 18 days after the operation. In regard to the special pathogenesis, the simultaneous onset of otitis with the general affection and its extension over the whole middle ear observed from the start, in connection with the almost constant lack of changes in the cartilaginous portion of the tube in the first days, seem to be decidedly contrary to the general surmise of a propagation from the cavum. The pathologico-anatomical conditions rather suggest a direct analogy of the inflammation with the exanthema. Bezold further mentions, with regard to the former studies of v. Troeltsch, Kossel, Hartmann, Rasch, and Wendt that the pathologico-anatomical findings in measles are not isolated in their frequency from other ear

affections. Finally Bezold characterizes the conditions during life, which do not show a specific alteration of the *Mt* as compared with the other infectious diseases. He does not remember a case in his long practice, seen during or shortly after the disease, in which a perforation of the *Mt* had not healed.

ERHARD MÜELLER, Stuttgart.

23. I. CASE. Miliary tuberculosis of the left ear of hematogenous origin.

II.—Subacute miliary tuberculosis in bilateral purulent otitis media and co-existing tuberculosis of the intestines, solitary tubercle of the cerebellum.

III.—Extensive tuberculous destruction of the temporal bone, tuberculous meningitis—probably originating in the intestines.

IV.—At first tuberculosis of glands and bones, then probably of the temporal bone, and afterwards of the soft parts.

V.—Tubercles in the trunk of the auditory nerve of a child, who died from meningitis. BANWICK describes the clinical symptoms of aural tuberculosis: entirely or almost painless course, rapid decay, rapid diminution of hearing, rapid progress into the surrounding parts. Acute tuberculosis of the ear is found, when the organism is crowded with tubercle bacilli from the blood. The more frequent chronic tuberculosis reaches the ear through the tube from the regenerating organs or hematogenously when the bone or the soft parts are first affected.

E. BLOCH (Freiburg).

24. Clinical history of three cases of anchylosis of the maxillary joint after ear affections, and method of operating.

GRADENIGO.

25. According to various authors, 0.75 to 2.67 out of 100 ear patients are syphilitic. They show characteristic changes in the different tissues of the ear analogous to those seen otherwise in the body in syphilis. The affections of the various parts of the ear are discussed in detail. Primary affections of the external ear are rare. Of secondary and tertiary forms, maculous, papulous, pustulous, and gummous syphilides are seen. The periosteum and bone show circumscribed or diffuse affections. The lumen of the external meatus may become obliterated by hyperostosis or diffuse hyperplasia of the periosteum. Only a few cases of papulous exanthemata of *Mt* and formations of gummata on *Mt* are observed. Primary affections of the Eustachian tube have occurred by infection with the catheter. Secondary

and tertiary changes not infrequently are associated with specific diseases of the pharynx. They may produce stenosis and obliteration of the tube.

There are only a few publications of pathologico-anatomical investigations of syphilitic diseases of the tympanic cavity (Kirchner, Voltolini, Schwartze, Gruber, Moos, and Steinbruegge). Clinically acute catarrh, acute and chronic purulent otitis media with perforation, sclerosis of middle ear, are observed. Syphilis of the labyrinth may occur in the secondary or tertiary stage of lues, but in most cases simultaneously with the onset of the general disease. The tertiary syphilis of the labyrinth generally affects both ears. The frequency of hereditary syphilis of the ear is differently stated ($\frac{1}{5}$ to $\frac{1}{3}$ of all hereditary syphilitic children). Even in utero the ear may be affected. In the first years of life there are more diseases of the external and middle ear. In a later period, even in the twenty-eighth year, according to Habermann, tertiary affection and incurable deafness may supervene. Hereditary syphilis may also affect all parts of the ear; maculous, papulous, and pustulous syphilides, no gummata, in the external meatus, otitis media, and sclerosis. Lues hereditaria tarda may invade the labyrinth at the age of puberty.

HARTMANN.

26. URBANTSCHITSCH gives a review of the reflexes, transmitted from the ear to the motor apparatus of the eye, which have been hitherto described, and observed by himself. They are: nystagmus, strabismus, paralysis of the superior oblique muscle, and pupillary reflexes. The following case of Urbantschitsch's is remarkable: A woman developed slight divergent squint on the same side on which she had still purulent otitis media. The squint increased considerably from the moment when a polyp, springing from the inner wall of the tympanic cavity, was removed with the snare, and persisted.

POLLAK (Vienna).

27. GRASSMANN'S case showed numerous attacks of dyspnœa of 2 to 20 minutes' duration, vertigo, precordial distress, colic, intense feeling of cold, especially clonic and tonic muscular spasms, and marked psychic excitement. Improvement after about five hours. It is interesting, that the patient did not experience any unpleasant effect from a piece of cotton soaked with a 20 per cent. solution of cocaine, which he had applied to a painful place of his gums for several days and on the same morning

But as soon as he had swallowed some of a 5 per cent. solution contained in the cotton (on the whole not more than 0.05 gramme), symptoms of intoxication set in after five minutes. It could not be ascertained whether this was chiefly due to a more favorable resorption from the alimentary canal, or to an accumulative action of cocaine, or to a special disposition of the patient at the time. MÜELLER.

28. TREITEL sees only a very limited value in the exercises devised by Urbantschitsch ; confesses, however, that he has not had much experience with them. BLOCH.

29. The author, director of the County Deaf-Mute Asylum in Wien-Doebling, where Urbantschitsch made most of his experiments, indorses very warmly the introduction of hearing exercises in deaf-mute institutions. Lehfeld thinks it to be the duty of the schools for the deaf and dumb to practise hearing exercises. Those pupils should be subjected to them in whom still a trace of hearing is left, but not too much hope ought to be placed in the recuperation of hearing. The views of teachers of the deaf and dumb opposed to the methodical exercises are discussed in detail. The method itself is that of Urbantschitsch. In order to hear their own voice Lehfeld recommends the hearing tube : the patient speaks into the funnel, while both ends of a hearing tube are conducted into the ears by a double tube. HARTMANN.

30. The new treatment of stammering by LIEBMANN consists in securing the vowels a predominance over the consonants in the utterance of the patient, as it exists in the normal way of speaking. At the first sitting Liebmann lets the patient speak in the regular tone of speech with long vowels and short, but sharply articulated, consonants. Liebmann considers all gymnastics of breathing, voice, and articulation superfluous. A natural language is surely gained after a much shorter time (four weeks). More than a hundred patients afflicted with stammering were thus successfully treated by Liebmann. HARTMANN.

INSTRUMENTS AND METHODS OF EXAMINATION AND TREATMENT.

31. CORRADI, Dr., Verona. A method to obtain sounds of tuning-forks of equal intensity with a new instrument. *Allg. Wien. med. Zeitung*, No. 1, 1896.

32. DE ROSSI. Operative surgery of the middle ear, and new instruments. *Archivio ital. di Otolog.*, vol. iii., p. 1.

33. Boyd, E. G. An improvement of Wright's snare. *Med. Rec.*, Jan. 4, 1896.

34. Ferreri. A new retro-nasal polypotome. *Archivio ital. di Otol.*, vol. iii., p. 170.

35. Réthi, Dr., Vienna. A new snare for hypertrophied anterior extremities of turbinated bodies. *Wien. klin. Rundschau*, No. 6, 1896.

36. Armstrong, Herman L. A new syringe for treating epistaxis. *N. Y. Med. Journ.*, Nov. 16, 1895.

37. Daae, Hans, Christiania. An apparatus for treating ozæna with massage. *Arch. f. Laryng.*, ii., 2.

38. Hartmann, A., Berlin. Instruments for operating on the tonsils. *Deutsche Aerzte-Zeitung*, No. 3, 1896.

31. Corradi's instrument consists of a kind of curved and two-pronged steel spring, fastened on a wooden handle at its highest point of convexity. In order to cause the tuning-fork to vibrate, the spring with its narrowest part is introduced between the prongs. By rapidly pulling the spring out of the tuning-fork the latter commences to oscillate, and the vibrations must be of equal intensity (?). Pollak.

32. De Rossi describes (1) a speculum with a biconvex lens; (2) a pair of forceps for extraction of the ossicles. Gradenigo.

33. Boyd's modification consists in the addition of a barbed needle which is attached to the snare by two loops and extends over the end of the canula. The base of the needle is graduated. It is used for transfixion of posterior hypertrophies.

M. Toeplitz.

34. Ferreri recommends a pair of forceps according to Lange, which is introduced through the mouth, for the removal of polypi springing from the posterior extremity of the inferior turbinated body and pendent towards the soft palate.

Gradenigo.

35. The purpose of the instrument is to prevent slipping of the snare. The extremity of the turbinated body can be removed by it at once, *i.e.*, by grasping, transfixing, and snaring off. It consists, like the common cold snare, of a handle and a tube for conducting the wire. A strong rod, which forms a spring, runs through handle and tube, terminating in a needle, and can be moved by means of a ring. Pollak.

36. The syringe devised by Armstrong is supplied with an

adjustable shield and piston and a post-nasal tip. In epistaxis as well as in atrophic rhinitis the nose is to be syringed with it, using hot water, as hot as it can be borne by the patient.

M. TOEPLITZ.

37. An elastic probe, slightly bent, is adjusted to a small disc, which rotates rapidly by means of a cord, connected with a larger disc that is put into motion. The frame, bearing the disc is screwed on a table. The patient turns the disc. The operator moves the instrument proper over the nasal mucous membrane (or later on the patient himself). DAAE is very well satisfied with his results. The apparatus is cheaper than others ($2.50).

ZARNIKO.

38. HARTMANN increased the size of his conchotome (formerly devised for removal of the anterior extremity of the middle turbinated body) for tonsillotomy, but reduced it in size for the turbinated bodies. He can remove the entire anterior end of the middle turbinated body with one cut of the instrument and, therefore, thinks it to be more practical than Gruenwald's modification. The conchotome may be used for tonsillotomy, if only a portion of the tonsil is swollen, or if the swelling is only moderate, or the focus of the inflammation limited to a few lacunnæ. Slitting is sufficient for healing, if there are only moderate concretions in the lacunæ. He uses for this purpose a sharply pointed, crescent-shaped knife (the handle forms a right angle with the blade), which severs the tissue easier than a blunt hook or a blunt-pointed knife.

H.

EXTERNAL EAR.

39. PRITCHARD, URBAN. Hyperostosis of meatal wall necessitating operation. *King's College Hospital Reports*, 1896.

40. MCBRIDE, PETER. Removal of a foreign body from the tympanic cavity. *The Medical Chronicle*, Feb., 1896.

41. MILLIGAN, WM. Foreign bodies in the external auditory meatus. The *Medical Chronicle*, March, 1896.

42. ALLPORT, FRANK. Myringitis acuta, myringitis bullosa. *Jour. Amer. Med. Assoc.*, Jan. 18, 1896.

43. BARCLAY, ROBERT. Foreign bodies in the ear. *Med. News*, Jan. 11, 1896.

39. PRITCHARD removed a hyperostosis which completely blocked the meatus. Operated on, in two stages: (1) A large

piece removed with chisel and hammer; (2) remainder removed with Pritchard's trephine worked by means of a dental engine. Strict antiseptic precautions, rapid healing, excellent result, the meatus appearing normal.

40. McBRIDE had to sever the auricle from the bone and to chisel away the posterior and superior wall of the external meatus to remove a bean from the tympanic cavity of a child aged five years. CHEATLE.

41. In his papers MILLIGAN urges three maxims:

(1) Be sure that a foreign body exists; (2) If present, make a careful attempt to remove by syringing; (3) If instruments have to be employed be careful that measures be undertaken with the utmost gentleness under proper illumination. The whole subject is dealt with, and a case related in which much damage was done to the middle ear, including fracture of the handle of the malleus, owing to neglect of the above rules.

42. The case reported was that of a young lady, aged twenty, who had suffered from an acute nasal catarrh for two or three weeks. On November 11, 1895, she experienced in the evening a sudden and severe pain in the left ear, which continued with increasing severity until the morning of November 12th, when the case was first seen. The drum membrane at that time was obscured by three large bullæ—one at the upper anterior quadrant, extending down nearly to the extremity of the handle of the malleus; another at the junction of the drumhead with the posterior meatal wall; another, the third, at the inferior extremity of the malleus. The bullæ were punctured and contained serous fluid. The drumhead was intact, as shown by Politzer inflation. Five days later, the drumhead had resumed a normal appearance and the hearing was perfect. GORHAM BACON.

43. BARCLAY reports three cases, the first of which was that of a lady, who, while picking her left ear with a hairpin, broke it, and, while trying to remove it suddenly, one portion of the hairpin became imbedded in the soft tissues of the floor of the external auditory canal, and every attempt to remove it only served to make it penetrate the flesh more deeply. The hairpin was removed, and under one or two applications the wound healed.

The second case, a clerk, aged eighteen, while lying upon his left side, had some bird-shot pitched towards him by a friend who was seven feet away. He felt shot enter the ear and cause deafness. On turning over the shot fell out but the ear felt

stopped up. On examination, his right drumhead was found a trifle congested but otherwise normal.

The third case was that of a man, aged forty-six, who for two weeks had suffered from deafness on the left side, with an occasional tinnitus, but without earache. On examination of the left ear, the vibrating portion of the drumhead was thickened, opaque, lustreless, and somewhat retracted ; the flaccid portion and entire periphery much congested. Just in front of the handle was a dark body, resembling a dried blood-clot, but thicker. It was removed with a foreign-body forceps and it was supposed to be a coal-cinder. The patient made a rapid recovery.

GORHAM BACON.

MIDDLE EAR.

44. SCHMALTZ, H. The relations of acute otitis media to the general organism. *Bresgen's Sammlung zwangloser Abh.*, etc., 1895, Hft. 3.

45. GALETTI. A few cases of purulent otitis media after posterior tamponade of the nose. *Archivio ital. di Otol.*, vol. iii., pp. 25, 171.

46. POLLAK, JOS., Vienna. Diagnosis and therapeutics of acute otitis media and consecutive mastoid ostitis. *Centralbl. f. d. ges. Therapie*, Hft. 1 and 2, 1896.

47. PES, O., and GRADENIGO, G. Staphylococci in acute and chronic otitis media, especially in regard to treatment. *Giornale della R. Acad. di Torino*, Nos. 7, 8, 1895.

48. BRUCK. Treatment of suppurations of the attic with a new canula. *Deutsche med. Wochenschr.*, No. 4, 1896.

49. LAKE, R. Excision of ossicles and membrane in chronic suppuration of the middle ear. *Med. Press*, Feb. 26, 1896.

50. WALKER, SECKER. A case of exfoliation of labyrinthine structures. *Lancet*, Jan. 4, 1896.

51. SHIELD, MARMADUKE. The treatment of severe mastoid disease by implantation of skin-flaps. *Lancet*, Feb. 8, 1896.

52. CONSTADT. Modification of the operative technique of opening the mastoid process. *Ann. des mal. de l'oreille*, Feb., 1896.

53. TOEPLITZ, M. A case of epidural abscess due to acute suppurative otitis. *Amer. Med.-Surg. Bull.*, Feb. 15, 1896.

54. PRITCHARD, URBAN. Subacute middle-ear suppuration with an extra-dural abscess in posterior fossa. Rotatory symptoms. *King's Coll. Hosp. Rep.*, 1896.

55. ZAUFAL, E., Prof., and PICK, A., Prof., Prag. Otitic abscess of the left temporal lobe. Optic aphasia. Trephining. Recovery. *Prager med. Wochenschr.*, Nos. 5, 6, 8, 9, 1896.

56. GRADENIGO, G. Otitic cerebral abscess. Trephining of skull. Evacuation of abscess. Recovery. *Archivio ital. di Otol.*, vol. iii., p. 354.

57. MURRAY, R. W. Temporo-sphenoidal abscess secondary to middle-ear suppuration." *Brit. Med. Journ.*, March 7, 1896.

58. MAJOR. Middle-ear suppuration with head symptoms. Exploration of brain with negative results. Recovery." *Lancet*, March 28, 1896.

59. CORRADI. Purulent meningitis and acute hydrocephalus after acute purulent otitis media. Suspected abscess of the brain. Trephining. Death. *Archiv. ital. di Otol.*, vol. iii., p. 44.

60. GREEN, J. ORNE. Exploration of the lateral sinus. *Boston Med. and Surg. Journ.*, Nov. 21, 1895.

61. GRADENIGO, Prof. On otitic thrombosis of sinus. *Archiv. ital. di Otol.*, vol. iii., p. 484.

62. LUCAS, A. Case of thrombosis of lateral sinus. *Birmingham Med. Rev.*, Jan., 1896.

63. GREEN, J. ORNE. Circumscribed periphlebitis of the jugular due to mastoiditis. *Trans. Amer. Otol. Soc.*, 1895.

64. PASSOW. A case of chronic purulent otitis media. Gliosarcoma of the corpora quadrigemina. Death in chloroform-narcosis. *Deutsche med. Wochenschr.*, No. 44, 1895.

44. SCHMALTZ thinks that taking cold, in the modern sense, is one of the chief causes of acute purulent otitis media in contradistinction to infection. The latter may occur from outside, *e. g.*, by indirect traumatism, by penetrating injuries of the *Mt* or diseases of the meatus. The most important access is through the tube, through which the germs may enter from the respiratory and the alimentary tracts. The vascular system plays an inferior part in recent inflammations ; but an embolic or hemorrhagic inflammation may occur in diseases of the heart, pyæmia, or nephritis. It may be due to parotitis, leukæmia, diabetes. About one per cent. of rachitic children suffer from otitis media suppurativa. In leukæmia more frequently the hemorrhagic inflammation is

observed; in diabetes, rapidly advancing destruction of the hearing organs. All infectious diseases have a tendency to affect the ear, very rarely lues and malaria.

45. GALETTI reports four cases of acute otitis media suppurativa after posterior plugging of the nose on account of profuse bleeding, and discusses the cause of infection of the middle ear and the methods how to avoid such complications.

GRADENIGO.

46. Written for non-specialists. POLLAK lays especial stress on early antiphlogosis (application of Leiter's coil on the mastoid process, of tincture of iodine, etc.). If this were done in time, the operation would have to be resorted to only in a small proportion of the cases. An operation is only indicated, if after eight days the inflammatory symptoms do not yield to antiphlogistic treatment, if the profuse otorrhœa and the evening exacerbations of the fever continue, or symptoms of meningeal irritation or chills set in. POLLAK.

47. PES and GRADENIGO made bacteriological investigations in regard to the recent assertion of Lermoyez and Helm, that the pyogenic staphylococci rendered the otitis media suppurativa chronic by secondary invasion of the middle ear from the external canal. They tried to prove, that the secondary infections in acute otitis media occur frequently through the tubes, and that the protracted course of acute otitis is not necessarily due to staphylococci, but to more complicated causes. Except general conditions (acute or chronic infections), the following causes may be assumed: 1, retention of pus; 2, mastoid complications (especially, in the sense of Bezold, abnormal extension of the mastoid cells, but not necessarily dependent upon them); 3, chronic inflammations of the naso-pharynx and external meatus. Against the assumption of Lermoyez and Helm they did not find pyogenic staphylococci in the ordinary absorbent cotton, only a few saprophytic germs.

They concluded their article with statistics on the occlusive aseptic treatment of acute otitis media. Among 167 cases of acute otitis media there were 96 with spontaneous or artificial perforation, of which 71 healed without suppuration. The inflammation lasted, at an average, two weeks, ten to twenty-three days. The authors regret not to be able to compare their satistical results with those of others who employ syringing. GRADENIGO.

48. BRUCK found in some cases the introduction of Hartmann's S-shaped canula into the attic too difficult for the treatment of chronic suppurations of the attic in perforations of Shrapnell's membrane. He constructed, instead, a thin metal canula with lateral openings at its anterior end, which may be attached to an ordinary Pravaz's syringe. The author considers this to be better (?). NOLTENIUS.

49. LAKE describes the method of removing the membrane and ossicles and insists on the subsequent thorough clearing out of the attic. The indications for the procedure being : when the discharge, under careful treatment, does not stop in six weeks to three months ; when great impairment of hearing exists with good bone-conduction after healing has taken place ; when a perforation is present in Shrapnell's membrane with definite evidence of caries ; perforation in posterior superior quadrant ; large perforation in inferior half of membrane or loss of the whole membrane ; perforation in Shrapnell's membrane with caries of anterior attic wall ; and when evidence of caries of the inner tympanic wall is present.

50. At a meeting of the Leeds and West Riding Medico-Chirurgical Society, WALKER showed a sequestrum which he had removed, consisting of the semicircular canals, the vestibule, and the greater part of the cochlea.

51. SHIELD claims to have obtained good results in the treatment of mastoid disease when the removal of a large amount of bone was necessary, by turning in a tongue-shaped flap of skin dissected off from behind the ear, the base of the flap being above, on a level with the upper attachment of the auricle, the tip corresponding with that of the mastoid process.

52. A curved spatula, 9 *mm* wide, with a prominence on its lower end, is pushed under the periosteum in the centre of the posterior wall of the meatus and pulled forward. The width of the spatula shows the limits of the field of operation.

ZIMMERMANN.

53. At a meeting of the Section of Ophthalmology and Otology of the N. Y. Academy of Medicine, held January 20, 1896, TOEPLITZ reported a case of epidural abscess, in which the aural affection began early in October, 1895, with pain in the right mastoid. Four weeks later there was a scanty discharge, and it was still present when examined two weeks subsequently by Toeplitz. There was at this time only pain on pressure over the

mastoid ; bulging of the upper and posterior wall of the external auditory canal ; temperature normal. A free incision was made in the bulging portion and some granulations of the external meatus were removed. Four days later œdema over the mastoid developed, accompanied by extreme pain. The mastoid was immediately opened. The antrum was found free from pus. An opening was then chiselled backwards and inwards and a fistula found in the inner plate of the mastoid, which passed into a cavity from which about an ounce of thick pus was evacuated. The dura was exposed and found normal. The opening closed in five weeks and the hearing became normal.

GORHAM BACON.

54. A man, aged fifty-one, came to Pritchard's clinic complaining of discharge from the left ear, with giddiness and vomiting. The giddiness could be produced by turning the head sharply to the left and in no other movement ; during the giddiness objects seemed to pass in front from right to left and patient tended to fall towards the left. An abscess formed behind the ear. An opening found in back part of mastoid leading to ragged-looking dura mater in the posterior fossa. Complete healing in a month. The temperature never rose above normal, except for three days before the operation, when it only reached 99° F.

55. The case is especially interesting on account of the precise diagnosis of abscess of the brain and its localization made before the operation. Abscess in the white substance of left temporal lobe in its inferior and posterior portions. The diagnosis rested chiefly on the optic aphasia, which pointed directly to a lesion of the path of association from the occipital lobe to the centres of speech. The disturbance of speech, which the patient exhibited, appeared as slight paraphasia and was attributed to a lesion of the temporal lobe, since paraphasia occurs mostly in lesions of the latter or the insula, which could be excluded. The wanting of motor aphasia argued against the seat of the lesion in the most anterior territory of the path under consideration. The conclusion, that the lesion was situated in the temporal lobe itself and not behind it, was corroborated by the lack of all symptoms characterizing damages of the gyrus angularis sinister and of the occipital lobe. There was not a trace of hemianopia, which showed that the abscess must have been situated more forward. The paraphasia was so slight that it spoke for a slight or for no affection of the cortex of the temporal lobe. The other symp-

toms, chiefly the right-sided hemiplegia, agreed with the precise diagnosis of the seat as secondary affections. The operation, performed by ZAUFAL confirmed the diagnosis. The patient was dismissed as cured six weeks after the operation. POLLAK.

56. A peasant, aged forty-nine, had otitis media of the left ear from childhood. One day the habitual discharge of pus ceased and slight pain in the centre of the left side of head set in. After thirty days an apoplectiform seizure deprived the patient of consciousness for several hours. When the patient awoke he had lost his speech. When admitted to the clinic he had a slow (60), regular pulse, stiffness and pain in the muscles of the neck, paresis of left facial nerve, offensive pus in meatus, no alterations of the soft parts of the mastoid process. Temperature at night 39.3° C., pulse 60. The squama of the left temporal bone was trephined directly above the superior wall of the meatus, and the opening in the bone dilated in all directions with Luer's forceps. Dura mater of normal appearance, not pulsating. A large portion of the upper wall of the meatus is removed for the examination of the region above the tegmen tympani, but with negative result. About 1 *cm* above the superior wall of the meatus a canula (3 *mm* thick) is introduced to a depth of 3 *cm*, and serous sanguinolent offensive fluid aspired. Cruciform incision as far as 3 *cm*, profuse oozing of offensive pus, evacuation of abscess cavity, drainage, occlusive dressing. The abscess was about the size of a pigeon's egg. Complete recovery after about one and a half months. GRADENIGO.

57. At a meeting of the Liverpool Medical Institution, held on February 27th, MURRAY related the case of a girl aged seven years who had a temporo-sphenoidal abscess on the left side, containing one ounce of pus, evacuated ; one month later, convulsions suddenly came on, involving the right arm and leg and right side of face, with loss of consciousness ; the lobe was again explored and a drachm of pus let out ; in spite of this, death occurred, and at the post-mortem examination the left temporo-sphenoidal lobe was found inflamed and softened with pus in the lateral and fourth ventricles.

58. At a meeting of the Bradford Medico-Chirurgical Society, held on March 7th, MAJOR related the case of a man aged twenty-three years who had suffered with left middle-ear suppuration for many years. Two days before admission to the hospital severe headache and giddiness came on with Jacksonian convulsions

affecting the right arm, leg, and side of face. Appleyard trephined over the temporo-sphenoidal region and explored the left hemisphere with a needle, with a negative result. The man made an excellent recovery.

59. In a girl, aged seven, with chronic otorrhœa, suddenly severe meningitic symptoms set in. The following day, after opening of the mastoid process and the attic, the cranial cavity was opened from the mastoid process. A suspected abscess of the temporal lobe was not found. The post-mortem showed purulent lepto-meningitis with hydrocephalus.

GRADENIGO.

60. GREEN reports three cases. In two of them, a chronic suppurative tympanum was running its course without attention, and without marked temperature or any cerebral symptoms, when suddenly there was a chill and temperature at 105° F. In the third, a chronic tympanic suppuration was followed by sudden and persistent dizziness and vomiting, with a moderate rise in temperature. In all three, examination showed such a sensitiveness of the mastoid to pressure as to justify the diagnosis of mastoiditis, and a mastoid operation was advised and immediately undertaken. During the operation the lateral sinus was exposed, aspirated, and proven healthy, without any injurious effect, and phlebitis of the sinus was excluded. The subsequent history of all was that of a mild septic fever, which improved steadily from the time of the operation, and was over in from one to two weeks; in fact, the not unusual history of osteo-phlebitis in which, if the pus focus is removed early by operation, thus preventing further septic infection, the prognosis in most cases is good. The fever had already begun before the operation, and in all probability was not connected with that procedure.

GORHAM BACON.

61. GRADENIGO reports three cases of otitic thrombosis of the sinus. 1st case: Acute mastoiditis, aseptic thrombosis of left sinus transversus. Deeply seated abscess of neck. Death from lepto-meningitis and cerebellar abscess with latent course. The pain set in immediately after the opening of the mastoid process. No fever at all except the thrombosis of sinus. No symptoms pointing to an intracranial disease found at the operation. The cerebellar abscess was situated very deeply in the neighborhood of the medulla oblongata, and had at the examination nearly escaped detection. 2d case: Chronic otitis media of right

ear, septic thrombosis of sinus transversus, extra-dural abscess at the region of the tegmen tympani. Infarctions and pus foci in the lungs. Death. At the time of admission to the clinic serious complications in the lungs existed. 3d case: Acute otitis media of right ear with affection of mastoid process and subperiosteal abscess. Opening with chisel. Serious pyæmic symptoms set in. Opening and evacuation of sinus. Recovery.

GRADENIGO.

62. In LUCAS's case which ended fatally from pyæmia, pus was found at the post-mortem behind the *left* orbit, the infective process having extended from the *right* lateral sinus to the ophthalmic vein through the petrosal and cavernous sinuses.

63. GREEN reports the case of a man, aged twenty-eight, seen first July 1, 1891, with a history of typhoid fever five weeks before. At the very beginning of the so-called typhoid, according to his account, there was pain and swelling behind the right ear, which gradually extended down the neck just in front of the sterno-cleido-mastoid muscle. Ten days before entrance there was a slight chill and a few days after this a severe rigor. An examination showed the ordinary symptoms of otitis media and of mastoid disease, and great tenderness along the anterior edge of the sterno-cleido-mastoid muscle, but no indurated cord could be felt. The mastoid process was opened, which brought some relief for a few days. Later the patient had one rigor and fever and vomited. The neck was examined and, on opening the sheath of the internal jugular vein, a few drops of pus were evacuated. No thrombus. From this time convalescence was rapid and uninterrupted. BACON.

64. The contents of this article are fairly described by the title. PASSOW says, with perfect right, that the diagnosis of brain tumor would have been easier if there had been no chronic otitis media (and mastoiditis). The bilateral papillitis ascertained before the operation apparently was not given due importance. The anæsthetic was carefully administered. Apparently death was caused by the sudden change of intracranial pressure, leading to paralysis of the respiratory centre, while the heart continued to beat for more than an hour longer. All rescuscitative efforts were in vain. On account of some interesting details the original is referred to. NOLTENIUS.

INTERNAL EAR.

65. TRIFILETTI. Hysterical aphonia and deafness. *Archivio ital. di Otol.*, vol. iii., p. 320.

66. PRITCHARD, URBAN. Reflex labyrinthine symptoms during pregnancy. *King's Col. Hosp. Rep.*, 1896.

67. JOFFROY. Unilateral halluciations. *Archives de Neurol.*, vol. i., No. 2, 1896.

65. Besides other hysterical symptoms, hysteric aphonia and deafness occurred in a girl, aged eighteen, after an excitement.

GRADENIGO.

66. A woman, aged twenty-nine years, four months pregnant, attended PRITCHARD'S clinic, complaining of giddiness, vomiting, and vertigo, attacks followed by transient deafness. Same during a previous pregnancy, ceasing on delivery.

CHEATLE.

67. A man, aged sixty-five, had chronic aural catarrh of both ears with stenosis of Eustachian tubes, peripheric affection of the auditory nerves, especially the left. Abusus spirit. Hallucinations only occur in ear affections, if a hereditary or acquired disposition exists. Alcoholism is of special importance. The post-mortem revealed in the ear the changes diagnosed during life; in the brain, those generally found in alcoholism with dementia: in the right frontal lobe, the first and second temporal gyrus, and in the left first temporal gyrus. BLOCH.

NASO-PHARYNX.

68. THOMSON, ST. CLAIR, and HEWLETT, R. T. The fate of micro-organisms in inspired air. *Lancet*, Jan. 11, 1896.

69. SEQUEIRA, J. H. Chronic pharyngeal affections and their relation to diphtheria. *Brit. Med. Journ.*, Jan. 20, 1896.

70. ST. CLAIR, THOMSON. On antisepsis and intranasal medications. *Ann. des mal. de l'oreille*, January, 1896.

71. BULKLEY, L. DUNCAN. Bicarbonate of soda in the treatment of a common cold. *Med. Rec.*, Jan. 18, 1896.

72. BOSWORTH, F. H. The recent progress of treatment in affections of the upper respiratory tract. N. Y. Academy of Medicine, Feb. 20, 1896. Nose and accessory sinuses. *Med. Rec.*, Feb. 29, 1896.

73. SEILER, CARL. A novel method of performing major operations within the nasal cavities. Meet. Phila. Co. Med. Soc. *N. Y. Med. Journ.*, Nov. 16, 1895.

74. BACON, BARCLAY. Nasal disease associated with epilepsy. *Brit. Med. Journ.*, March 19, 1896.

75. MACDONALD, GREVILLE. A case of rhinitis caseosa. *King's Col. Hosp. Rep.*, 1896.

76. GRADENIGO. A case of rhinolith. *Giornale della R. Acad. di Medicina*, No. 10, 1895.

77. BOND, J. W. Maggots in the nose. *Proc. of the Laryng. Soc. of London*, March 11, 1896.

78. RÉTHI, L. The hemorrhages of the upper air passages. *Bresgen's Sammlung*, etc., Hft. 4, 1895.

79. RICE, CLARENCE C. In what manner can ulcerations of the nasal septum following operation and in atrophic rhinitis be healed to secure an even and moist surface? *Med. News*, Feb. 8, 1896.

80. KOPHIER, HANS, Dr., Vienna. On nasal thrombosis. *Wien. klin. Wochenschr.*, No. 36 *ff.*, 1895.

81. MCBRIDE, PETER. Lupus of throat and nose. *Med. Chronicle*, Feb., 1896.

82. FREUDENTHAL, W. Rhinoscleroma. *N. Y. Med. Journ.*, Feb. 1, 1896.

83. SOMERS, LEWIS S. Separation of the nasal cartilages. *N. Y. Med. Journ.*, Feb. 8, 1896.

84. HETT, J. E. A rapid and rational method for the removal of hypertrophies of the inferior turbinated bodies. *N. Y. Med. Journ.*, Feb. 8, 1896.

85. ARSLAN. Contribution to tumors of the septum. *Arch. ital. di Otol.*, vol. iii., p. 32.

86. RICHARDSON, C. W. A case of double-pediculated myxo-fibroma. *Annals of Ophth. and Otol.*, Oct., 1895.

87. HARING, N. C. A case of sarcoma presenting in the nasal fossa. *Lancet*, Feb. 22, 1896.

88. MCBRIDE, PETER. A case of fibro-mucous polypus of the naso-pharynx. *Med. Chron.*, Feb., 1896.

89. CHEYNE, W. W. The objects and limits of operation for cancer. *Brit. Med. Journ.*, Feb. 22 and Mar. 7, 1896.

90. Roy, Dunbar. Congenital mucous polypus in the nose. *Journ. Amer. Med. Assoc.*, Nov. 23, 1895.

91. Pritchard, Urban. Congenital partial occlusion of nares. *King's Col. Hosp. Rep.*, 1896.

92. Thrasher, A. B. Congenital osseous stenosis of the nares. *N. Y. Med. Journ.*, Dec. 14, 1895; *Trans. Amer. Laryng. Assoc.*, 1895.

93. Baumgarten, E. D., Budapest. Occlusions and pseudo-occlusions of the choanæ. *Monatsschr. f. Ohrenheilk.*, No. 1, 1896.

94. Dionisio, F. Atresia and congenital stenosis of the choanæ. *Giornale della R. Acad. di Medicina*, No. 2, 1895.

95. Réthi, L. Deviations of the nasal septum in their local and general relations. *Bresgen's Sammlung*, etc., Hft. 9, 1896.

96. Mayer, Emil. Deviations of the cartilaginous nasal septum. *N. Y. Med. Jour.*, Dec. 14, 1896.

97. Pritchard, Urban. Serous fluid in the antrum of Highmore. Retention cyst. *King's Col. Hosp. Rep.*, 1896.

98. Lichtwitz. Complications of empyemata of the accessory nasal cavities. *Ann. des mal. de l'oreille*, Feb., 1896.

99. Bryan, J. H. A further contribution to the study of suppurative disease of the accessory sinuses. *N. Y. Med. Journ.*, Oct. 12, 1896, and *Trans. Amer. Laryngol. Assoc.*, 1895.

100. Bosworth, F. H. A case of suppurative ethmoid disease, followed by invasion of the sphenoidal sinus, abscess of the brain, and death. *N. Y. Med. Journ.*, Oct. 12, 1895, and *Trans. Amer. Laryngol. Assoc.*, 1895.

101. Bosworth, F. H. A case of melancholia dependent upon ethmoid disease and cured by intranasal operation. *N. Y. Med. Journ.*, Oct. 12, 1895, and *Trans. Amer. Laryngol. Assoc.*, 1895.

102. Linkenheld, D., Wiesbaden. Empyema of the maxillary antrum. *Münch. med. Wochenschr.*, No. 8, 1896.

103. Ziem, C. Foreign bodies in the maxilliary antrum. *Monatschr. f. Ohrenheilk.*, No. 1, 1896.

104. Rose, William. Necrosis of sphenoid bone and cerebral abscess. *King's Col. Hosp. Rep.*, 1896.

105. Day, Ewing W. Case of caries of the sphenoid bone *Journ. Am. Med. Assoc.*, Nov. 23, 1895.

106. THOST, A., Hamburg. On the symptoms and sequelæ of the hyperplastic pharyngeal tonsil. *Monatschr. f. Ohrenheilk.*, No. 1, 1896.

107. EAMES, GEORGE F. The relation of adenoid vegetations to irregularities of the teeth and associate parts. *Journ. Am. Med. Assoc.*, Feb. 15, 1896.

108. O'KINEALY, F., Surgeon-Captain I. M. S. Hypertrophy of the adenoid tissue in the naso-pharynx: an analysis of one hundred cases. *Indian Med. Gazette*, No. 9, Sept., 1895.

109. FLATAU, TH. S. Defective articulation of young individuals in relation to diseases of the upper air passages. *Bresgen's Sammlg.*, etc., Hft. 8, 1896.

110. BOND, T. W. Case of chronic spasm of pharynx and soft palate. *Laryngol. Soc. of London*, Jan. 8, 1896.

111. GOUGENHEIM and RIPAULT, A. On benign tumors of the velum palatinum. *Ann. des malad. de l'oreille*, Jan., 1896.

112. FERRERI and GARBINI. The hypertrophic tonsils. *Archivio ital. di Otol.*, vol. iii., p. 293.

113. FARLOW, JOHN W. Removal of the tonsils. *N. Y. Med. Journ.*, Nov. 9, 1895, and *Trans. Amer. Laryngol. Assoc.*, 1895.

114. NEWMAN, DAVID. Two cases of malignant disease of the tonsil; operation; recovery in each case. *Laryngol. Society*, Jan. 8, 1896.

115. ROTH, WILHELM D., Vienna. A case of spontaneous phlegmon of the naso-pharynx and abscess of the tonsilla pharyngea. *Wien. med. Presse*, No. 28, 1895.

116. KELLER, RICHARD D., Vienna. A case of herpes pharyngis. *Wien. klin. Wochenschr.*, No. 30, 1895.

117. CHAPPELL, W. T. Report of three cases of xerostomia or dry mouth. *N. Y. Med. Journ.*, Feb. 29, 1896.

118. MYLES, ROBERT CUNNINGHAM. Diseases of the accessory nasal sinuses, with suggestions regarding their treatment. *Med. News*, March 28, 1896.

119. FREEMANN, WALTER J. Operative treatment of purulent disease of the antrum of Highmore, with exhibitions of new instruments. *Journ. Am. Med. Assoc.*, Nov. 30, 1895.

120. CARR, WILLIAM. Empyema of the antrum. *N. Y. Med. Journ.*, Nov. 2, 1895; *N. Y. State Med. Assoc.*, Oct. 15, 1895.

121. PRICE, BROWN. Diagnosis and treatment of suppuration of the antrum. *Annals of Ophth. and Otol.*, Jan., 1896.

122. WRIGHT, JONATHAN. A true papilloma or papillary fibroma of the nasal septum. *N. Y. Med. Journ.*, Dec. 14, 1895; *Trans. Amer. Laryngol. Assoc.*, 1895.

123. THRASHER, A. B. Necrosis of the middle turbinate. *N. Y. Med. Journ.*, Dec. 7, 1895; *Trans. Amer. Laryngol. Assoc.*, 1895.

124. WRIGHT, JONATHAN. A cyst of the naso-pharynx and a cyst of the oro-pharynx. *N. Y. Med. Journ.*, Dec. 7, 1895; *Trans. Amer. Laryngol. Assoc.*, 1895.

125. RAVOGLI, A. Ulcerative syphilid of the pharynx. *Journ. Amer. Med. Assoc.*, Feb. 18, 1896.

126. BOSWORTH, F. H. The relation of vasomotor disturbances to diseases of the upper air tract. *N. Y. Med. Journ.* Nov. 3, 1895, and *Trans. Amer. Laryngol. Assoc.*, 1895.

127. RIESMANN, DAVID. Xerostomia. *The Philadelphia Polyclinic*, March 7, 1896.

128. KOPLIK, HENRY. Acute lacunar diphtheria of the tonsils. *Journ. Amer. Med. Assoc.*, Oct. 5, 1895.

129. NEWCOMBE, JAMES E. Ludwig's angina. *N. Y. Med. Journ.*, Nov. 23, 1895; *Trans. Amer. Laryngol. Assoc.*, 1895.

130. DOUGLAS, BEAMANN. Knife for tonsillar adhesions. *Med. Rec.*, Feb. 29, 1896.

131. VEEDER, ANDREW T. A modified cold snare amygdalotome. *N. Y. Med. Journ.*, Dec. 21, 1895.

132. HULEN, VARD H. Cavernous angioma of the tongue. *N. Y. Med. Journ.*, Oct. 26, 1895.

133. MULHALL, J. C. The cigarette habit. *N. Y. Med. Journ.*, Nov. 30, 1896; *Trans. Amer. Laryngol. Assoc.*, 1895.

68. THOMSON and HEWLETT, after alluding to a previous paper in which they demonstrated the practical sterility of the nasal mucus, and to the investigations of others which prove that expired air is nearly free from micro-organisms, describe the methods adopted by them to prove that the inspired air is free from germs after passing through the nose; they think that the great majority of micro-organisms entering the nose are arrested by the vibrissæ lining the vestibules, and that any that do enter are expelled by the cilia lining the mucous membrane.

CHEATLE.

69. In a paper read before the Hunterian Society of London, January 8, 1896, SEQUEIRA referred to the fact established by Thomson and Hewlett, that inspired air after passing through the nose is practically sterile, and thought that condition which produced mouth-breathing, especially hypertrophied tonsils and adenoid growths, predispose to diphtheria. He gave statistics which tend to support this. CHEATLE.

70. ST. CLAIR himself feels as if his suggestions came too late. He advocates antisepsis and recommends sterilization of instruments in 5 per cent. carbolic acid as convenient and sufficient. Sterilization of the nose itself is impossible.

ZIMMERMANN.

71. Owing to an experience gained from the use of bicarbonate of soda upon himself and others, BULKLEY gives to an adult of medium size and weight of from twenty to thirty grains in two to three ounces of water every half-hour for three doses, and a fourth dose at the expiration of an hour from the last one. After two to four hours the four doses are repeated, if necessary, and even twice more. He claims thus to break up the cold at an early stage, but finds this treatment also of benefit at a later period. In influenza it is combined with phenacetine. The treatment is based upon the idea that the acid condition of the system may be neutralized. M. TOEPLITZ.

72. BOSWORTH does not now consider nasal catarrh of long standing as incurable as he did fifteen years ago. Cocaine constitutes a very valuable progress. Catarrh is not excessive secretion. The turbinated bodies supply an excess of moisture in the expiratory over that of the inspiratory air, upon which fact the treatment has to be based, which consists in preserving the function without destruction of tissue. The septum, which is without function, may be destroyed. Secretions may become offensive by syphilis, but they are *per se* bland ; suppuration depends upon disease of accessory sinuses. Necrosis is an expression of constitutional disease. Ethmoid suppuration usually drains into the antrum. The progress of treatment is due to definite diagnosis. Reflex neuroses thus become less frequent and asthma also is better relieved. M. TOEPLITZ.

73. The recumbent posture alters the topographical relation of the parts to the operator, interferes with proper illumination, and allows the blood to flow into the larynx. SEILER places the patient, after complete anæsthesia, into a ventral recumbent pos-

ture with the head projecting downward, but supported, puts a looking-glass or concave reflector upon the floor, and places himself upon his back under the table. M. TOEPLITZ.

74. In BACON's two cases of epilepsy treatment of the nasal obstruction brought about considerable improvement. The first case was that of a lady, aged thirty-five, who had polypi in one nostril and hypertrophy of the inferior turbinated body in the other. Case 2: A young, unmarried person with hypertrophy of both inferior turbinated bodies. CHEATLE.

75. The case was that of a woman, aged thirty-five, who attended MACDONALD'S clinic complaining of stoppage in the nose for three months, and fetid discharge from the right nostril, the trouble having commenced with a bad cold in the head, followed by a profuse watery discharge which had lately become thick and yellow. A large, cheesy, putrid mass was found on the right side in the middle and inferior meatus and removed, revealing redness and swelling of the inferior turbinal and polypoid condition of the middle. After removal of polypoid masses from the middle turbinal a cure resulted. Sections of the masses showed a very cellular and vascular new-formed tissue covered with normal epithelium. No evidence of suppuration in any of the accessory sinuses. A very similar case was lately seen by me at the Royal Ear Hospital, cure being rapid and complete under the same treatment. ARTHUR CHEATLE.

76. A rhinolith of carbonate and phosphate of magnesia which had been formed around a kernel, caused intense headache with purulent discharge from the nose for ten years. GRADENIGO.

77. BOND exhibited larvæ and flies of *Piophila casei* found in the nose.

78. Hemorrhages from the upper air passages are traumatic or spontaneous, due to ulcerations, alterations of the walls of the blood-vessels, or to blood states as hemophilia, leukæmia, anæmia, fatty degeneration, infectious diseases, etc. The symptoms are marked only in more severe hemorrhages, the larynx excepted. Treatment differs according to locality and kind of bleeding. Profuse hemorrhages have to be stopped before the mirror, or other more careful examinations may reveal the origin of the bleeding. BLOCH.

79. RICE arrives at the following conclusions:

1. Ulcerations upon the nasal septum due to operations heal, according to the general healthfulness, better in hypertrophic than in atrophic conditions.

2. Ulcerations produced by excision heal better than those by galvano-cautery.

3. In healthy nostrils rubbing with antiseptic stimulants should be done, and also in multiple small ulcerations in atrophic rhitinitis.

4. Rubbing relieves also extreme irritability of nasal passages.

M. TOEPLITZ.

80. From the examinations of sixteen cases of nasal tuberculosis, and of six cases of lupus of the nasal mucous membrane, KOPHIER reached the following conclusions: 1. Nasal tuberculosis may occur in three forms: as infiltration or ulceration, as tumor, and as an affection starting from the bone or cartilage. 2. The ulcerating form entirely corresponds with the tuberculous ulcer of the larynx, histologically, bacteriologically, and clinically. 3. The tuberculous tumor of the nasal mucous membrane is owing to hyperplasia of the lymphatic tissue of the mucous membrane, and corresponds with the tuberculous-scrofulous scleroma (?). 4. The tuberculosis of the bone or cartilage is clinically and histologically analogous to the other tuberculous bone-affections. 5. Lupus of the nasal mucous membrane is the same as that of other mucous membranes histologically and clinically. POLLAK.

81. MCBRIDE describes three cases of lupus. The treatment adopted by him being usually followed by lactic or chromic acid or the actual cautery. CHEATLE.

82. The continent of America, with the exception of Central America, wherefrom twenty-three cases have been reported, is almost entirely free from rhinoscleroma, since only three cases have here been seen. Hebra's first publication, and also the relations of chorditis hypertrophica inferior and Stoerk's blennorrhœa to rhinoscleroma, which FREUDENTHAL believes to be identical with one another, are then fully considered. This is followed by the report of a case, that of a male patient, aged forty-five, born in Galicia, in whom, twelve years ago, upon the right side at the upper part of the nose, a mass of the size of a pea developed which, five years ago, grew more rapidly and in a year reached its present dimension. At the same time, stenosis of the nose and throat was established, so as to necessitate tracheotomy. The canula, which was removed after sixteen days, had to be reinstated a year ago in order to be worn ever since then. The nose then received a blow from a street car which produced hemor-

rhages from mouth and larynx and increased its growth. The right side of the nose was now as large as a hen's egg, with the top very much thickened, bluish red, and as hard as ivory. The swelling is caused by an enormous enlargement of the right inferior turbinated body, which pushed the septum over to the left side, thus closing both nostrils entirely. Cicatricial masses between the pillars, soft palate, and posterior pharyngeal wall close the naso-pharynx, but for a small opening $\frac{1}{8}$ inch in diameter; the uvula is destroyed. The parts below the epiglottis looked like one cicatricial mass. The bacteriological examination by Mr. B. H. Buxton revealed in cultures and inoculations the characteristic features of the rhinoscleroma bacillus. The case is remarkable on account of the unilateral location of the nasal affections, which is not directly continuous with that of the pharynx. M. TOEPLITZ.

83. SOMERS's patient, aged thirty-two, presented after an assault, a separation of the anterior nasal cartilages from the nasal bones on both sides, which gave rise to crepitation by the grating of the bones and cartilages against each other, without evidence of fracture. The cartilages were set in place simply by pushing them from the right toward the left. The patient ten years previously had experienced, through a stroke with a shovel, a fracture of the septum, which itself was extremely thickened on the left side by an exostosis. He had also suffered from empyema of the antrum Highmori. M. TOEPLITZ.

84. HETT claims that posterior hypertrophies of the lower turbinated bodies are produced by cauterizations of their anterior extremities only. He removed posterior hypertrophies from in front by long angular scissors, pulling the severed tissues away by long angular forceps, which may even tear them off if necessary. There is more hemorrhage after this method, but it is more thorough. M. TOEPLITZ.

85. ARSLAN describes 4 cases of tumors of the nasal septum: 1. Angio-fibro-sarcoma; 2. Fibro-sarcoma; 3. Adeno-fibroma; 4. Inflammatory granuloma. GRADENIGO.

86. In RICHARDSON's patient, a carpenter, aged thirty, a large reddish-gray mass was seen protruding from the naso-pharyngeal cavity along the inferior border of the soft palate and uvula, filling out the entire space between the lateral, anterior, and posterior walls of the naso-pharynx. Palpation revealed two attachments, a slender one above and anterior to the right Eusta-

chian tube, and the other pedicle, firmer and harder, to the vault just posterior to the left choana. The slender pedicle was freed from its attachment with the finger, while the other pedicle with the growths was evulsed by means of the snare. The tumor was pinkish to the right, deepening to a deep red towards the left mass. It was multi-lobular, consisting of two distinct masses which were joined in the centre ; the right one had two lobes. The larger left mass was almost entirely composed of fibrous tissue, while the left presented a myxo-fibrous condition. Measures and weight are not given. Two illustrations of either side of the tumor accompany the paper. M. TOEPLITZ.

87. HARING'S patient was a female, aged twenty-six years, who after having received treatment for what appeared to be ordinary nasal polypi, developed a rapidly growing tumor, which blocked the right nostril, bulged the right side of the nose, and produced epiphora and unilateral right-sided paresis of the soft palate. On turning down the nasal bones and nasal process of the superior maxilla, the growth was found limited to the ethmoid.

CHEATLE.

88. MCBRIDE'S case was that of a girl, aged twelve years, whose right nostril was obstructed far back by the polypus, which was attached by a narrow pedicle somewhat to the left of the middle line. Removal was effected by means of Thahle's forceps. McBride calls attention to the fact that this class of polypus is seen most frequently in females ; recurrence being rare.

CHEATLE.

89. In the second and third Lettsonian lectures delivered before the Medical Society of London, CHEYNE deals with cancer of the tongue, pharynx, naso-pharynx, and larynx. He does not consider great enlargement of the glands a contra-indication for operation, unless very extensive, or unless there is adherence to a variety of structures in the neck not merely to sheaths of vessels, as the glandular area in the neck can be thoroughly exposed and dealt with. He relates three cases of sarcoma of the naso-pharynx operated by him, two resulting in cure, life being prolonged for two and three-quarter years in the third. He alludes to the bad prognosis of lympho-sarcoma.

In dealing with malignant diseases of the pharynx and neighboring parts, eight cases of extreme interest are related, all requiring extensive operations, a cure resulting in three instances.

Cheyne's views on the question of preliminary tracheotomy, the control of the bleeding, the removal of the glands, and the

methods of gaining access to the primary cancerous mass in these cases, should be thoroughly studied *in extenso* in order to appreciate them. An abstract would be unsatisfactory. CHEATLE.

90. From a review of all cases heretofore reported, the rarity of congenital polypi and those occurring under fifteen years of age becomes evident. ROY's case was in a girl, aged fourteen, who has never been able to breathe through the left nostril. From her fifth to her eleventh year of age large pieces were removed in six operations, partly under chloroform without re-establishing nasal respiration. Roy found the polypus to fill the entire left nasal cavity from the anterior meatus to the naso-pharynx. He removed it *in toto* with the snare. The left lower and middle turbinals were found to be atrophied and the upper part of the septum deflected toward the right side, where the inferior turbinate was hypertrophic. The growth was attached beneath the rudimentary portion of the middle turbinate to a space not over a quarter of an inch in length. M. TOEPLITZ.

91. A boy aged nine years attending under PRITCHARD for chronic otorrhœa, was found to have a tough band passing from the inferior turbinal to the septum on the right side; and far back a tough membranous web extending completely across the cavity above the level of the inferior turbinal, having a small opening in its centre. On the left side a band joined the inferior turbinal to the septum. There was no history to account for the condition.

92. A baby, aged eighteen months, a mouth-breather, had muco-purulent discharge from the right nostril anteriorly and adenoids in the naso-pharynx. In passing a curette through the nose, an obstruction was met, before the finger in the naso-pharynx was reached. The partition was broken down with the curette; it consisted of thin bone and extended from the septum to the lateral wall at the posterior extremity of the lower turbinal, to which it was not attached. M. TOEPLITZ.

93. Two thirds of the atresiæ of the choanæ, so far published, are osseous, one third cartilaginous. The former always lie in one plane with the choanæ, the latter mostly towards the naso-pharynx. Only those observed in the plane of the choanæ ought to be called "true." BAUMGARTEN saw such an osseous atresia in the right choana of a girl, aged nine, with paralysis of right facial nerve. The diagnosis of congenital lues could not be excluded. In a woman, aged forty, he observed a diaphragm extending from above the choanæ down to the velum; it had a

perforation on right and left side. Something similar occurred in a woman; aged thirty. The pseudo-wall divided the naso-pharynx into an anterior and posterior portion and had a central fissure. Baumgarten thinks that these peculiar formations in the two last cases were not due to lues, but probably to scleroma in that of the lady aged forty. Finally he mentions a case, in which he could observe the process, how a transverse fold formed at the pharyngeal vault from one orifice of the tube to the other.

KILLIAN.

94. A girl, aged twenty-one, without hereditary disease, but with marked adenoid habitus, slight degree of saddle-nose, hard palate more curved than normal, fibrous adhesions between soft palate and posterior wall of pharynx, preventing a digital examination of the naso-pharynx. After the adhesions were severed with a curved raspatory, a firm fibrous palate could be recognized, closing the choanæ like a diaphragm. It was perforated from in front. GRADENIGO.

95. Treats of the anatomical conditions of deviations and spinæ of the nasal septum, whereby the communications of Hartmann ought to have been given due consideration. RÉTHI lays less stress on traumatism than is usually done and emphasizes, in conjunction with others, the discrepancy between the growth of the cranial and facial bones and that of the septum. Réthi distinguishes local and general symptoms and describes the effects of disturbed nasal breathing which we are familiar with chiefly as the consequences of adenoid vegetations. The deviations of the septum only require treatment if they cause obvious disturbances. Then he criticises the various methods. BLOCH.

96. MAYER recommends the operation devised by Asch in 1883. He breaks with a curved gouge adhesions between the septum and the turbinated body; and makes two incisions one with the blunt edge of the cartilage scissors, over the greatest convexity, and another at right angle. A hollow and perforated vulcanite splint is thus fitted into the formerly stenosed side and a smaller tube also into the concave side; the latter is removed on the following day. The larger tube is first removed on the third day for cleansing and replaced every day to be worn continuously for five weeks. The vulcanite tubes are flat and oval, in sets of twenty-seven different sizes. In acute cases the septum is compressed with the nasal forceps, straightened and held in place by a vulcanite tube. M. TOEPLITZ.

97. A woman, aged twenty-seven years, under PRITCHARD'S care complained of a hard, red swelling over the left cheek, the swelling none at right. No nasal trouble. On examination the outer wall of the antrum was bulged and distinctly elastic ; on introducing a trochar, a drachm and a half of yellow viscid fluid, loaded with crystals, was drawn off. On syringing out the cavity from the opening in the outer wall, the fluid returned through a counter opening drilled through the alveolar border, none passing out through the nose. Examination of the fluid showed it to be alkaline, containing a large amount of mucus, a small amount of albumen and chlorides, cholesterine crystals in large numbers, many nucleated white cells containing fat globules, and some much larger cells containing fat globules.

98. In this interesting article LICHTWITZ reports 147 cases, in 127 of which only one sinus was diseased either bilaterally or unilaterally ; in 22 several sinuses in various combinations. The complications affected mostly the surrounding organs, nose, pharynx, etc. Marked atrophies of the turbinated bodies occurred 13 times, partly appearing as ozæna, but they healed, after the sphenoidal sinuses were brought to normal conditions. The reverse took place in 3 cases, where a primary ozæna seemed to have extended to the sphenoidal sinuses. On the other hand, hypertrophies were observed very frequently, in 8 cases preventing nasal breathing entirely. In 3 cases rhinitis caseosa followed —in one after empyema of the antrum of Highmore, and in 2 after empyema of the frontal and ethmoidal sinuses. Small polypi in the hiatus semi-lunaris 12 times, larger mucous polypi 18 times, frequently on both sides, the empyema of the sinus one-sided. From this Lichtwitz infers that the polypi are rather the cause than the consequence of the empyema. One third of all patients complained of (kakosmia) subjective perceptions of disagreeable odors, mostly due to a focus of suppuration detected by an explorative puncture. In regard to naso-pharyngeal catarrh Lichtwitz endorses Ziem's assertion, that they only depend on suppurations of the nose or its accessory cavities. According to Ziem mostly of the antrum, but Lichtwitz found it mostly in empyemata of the frontal and sphenoidal sinuses. Several times swellings and abscesses of the tonsils followed. Of ocular symptoms Lichtwitz saw in 2 cases exophthalmus, in 3 dacryocystitis, in 2 atrophy of the optic nerve (one due to empyema of the sphenoidal sinus). Lichtwitz considers otitis media in adults

owing to empyema of the sinuses as frequent and dependent on the same causes, as otitis media in children with adenoid vegetations. It occurred 35 times; vertigo in 3 and subjective noises in 9 further cases. The most frequent complication is cephalalgia (51), mostly due to frontal and sphenoidal empyemata. Serious intracranial complications were never observed, only once epileptiform convulsions and loss of consciousness after irrigation of the sphenoidal sinus, perhaps caused by transient pressure upon the brain through the not quite intact posterior wall of the sinus. Erysipelas, observed in 5 patients, is, in the author's opinion, to be attributed to an infection by streptococci directly from the diseased sinus. In 2 cases erythema with œdema fugax occurred under antiseptic injections. Lichtwitz's observations of cases that presented the aspect of a grave affection of the lungs, so far mentioned only by Hartmann, deserve especial interest. Lichtwitz observed 7 patients, in whom prominent physicians had diagnosed tuberculosis of the lungs, as they showed the physical symptoms of it. But the remote onset of the disease, the absence of bacilli and a certain wavering of symptoms were not in favor of it. In all cases the pulmonary symptoms promptly subsided after healing of the empyema of the sinus. Probably they were due to subacute inflammations of the pulmonary tissue, caused by constant aspiration of infectious material, especially during sleep. Three further cases of obstinate cough, 5 with asthmatic conditions, belonged in this category. Whether the inflammatory symptoms, occasionally noticed, of the heart, kidneys, muscles, or joints, were of metastatic origin, starting from the empyema of the sinus or not, was doubtful. After some short remarks on the disturbances of the general health, observed by Lichtwitz, he gives the following *résumé* of treatment: opening of the maxillary sinus from an alveolus is the rule, from the fossa canina only, if all teeth are well preserved. The frontal and sphenoidal sinuses are opened from the nose, eventually after resection of the middle turbinated body. Differing from some late publications, Lichtwitz particularly recommends to attempt at least the opening of the frontal sinus from the nose. ZIMMERMANN.

99. Abscesses of the accessory sinuses frequently exist for a long period and are treated for neuralgia. BRYAN reports four cases of this kind.

Case I. was an *abscess of the right maxillary sinus resulting from dental caries*, in a man aged thirty-nine, the most noteworthy

feature of which was the removal of a portion of a needle, projecting about $\frac{1}{8}''$ beyond the root of the first molar into the antrum, simultaneously with the extraction of this root. The needle had been broken off eight years previously but it was forgotten. The antrum was washed out through the opening made through the extracted tooth. The general health of the greatly weakened patient soon improved.

Case II. was a *suppurative ethmoiditis terminating in caries of the anterior ethmoid cells*, in a man, aged sixty-eight, whose ethmoidal cells were opened by Bryan with the sharp curette and all diseased bone removed. The patient made a good recovery.

Case III. represented an *abscess of the left frontal sinus resulting from nasal polypi and hypertrophic rhinitis*, in a man, aged fifty, whose neuralgic symptoms were greatly increased by an attack of influenza. There existed swelling of the tissues of the left sinus, pains upon pressure and pitting of the skin, numerous polypi, and hypertrophy of the left lower turbinated body which was adherent to a projection of the septum. The removal of the polypi, spine, and hypertrophy sufficed to establish free drainage and considerable improvement.

Case IV. presented *abscesses of the frontal, ethmoidal, and maxillary sinuses*, with caries of the fronto-ethmoidal cells, in a woman, aged forty-eight, who had suffered for twenty years from catarrh, but only for seven months from muco-purulent discharge from the left nostril. The maxillary sinus was opened after extraction of the first molar tooth through its alveolar process, and the empyema disappeared from this cavity in two weeks, although the middle meatus still contained much pus and the severe headaches persisted. Eighteen days after the opening of the frontal sinus an opening was made into Highmore's antrum, from without, with the chisel, $1\frac{1}{2}$ *cm* in diameter, through which fœtid pus was discharged. A drainage tube was passed into the nose, and another inserted into the outer opening. Six weeks later the sinus was reopened, the cavity emptied of granulations and packed, without diminution of the quantity of pus, which now was also again found in the antrum ; furthermore, it was noticed that solutions injected into the antrum came out through the frontal sinus opening. About two months after the first frontal sinus operation the septum was found to be perforated and iodide of potassium was therefore given, but without benefit. Three weeks later the anterior ethmoidal cells were found to be dis-

eased, and the middle turbinated body was therefore removed and scraped with a sharp curette, until all carious bone was removed. From that time on the patient's condition rapidly improved to complete recovery, and the patient was discharged cured after ten months of observation. The description of these cases is followed by general remarks upon suppuration of the frontal and ethmoidal sinuses, and a discussion of its etiology, diagnosis, and symptomatology. The deeper or fronto-ethmoidal cells, as well as the absence of one of the three opening in the middle meatus, are represented by an illustration. Three additional illustrations demonstrate the ethnoïdal cells and sphenoidal sinus. The paper is concluded by indications of the different operative procedures and a brief account of sphenoidal disease.

M. TOEPLITZ.

100. A man, aged thirty-three, had suffered for years from a suppuration from the left nostril, and during the last few months also from that of the right one, with offensive odor and occasional headaches. On the 27th of January he was suddenly seized with intense and persistent headache confined to the left side of head and face, without fever or brain symptoms. BOSWORTH found, four days later, the wall of the ethmoidal cells soft and crumbling, and the sphenoidal sinus invaded. He attempted to open the latter by a sharp-pointed gouge, which procedure was followed by temporary relief. Eight days subsequently another operation was tried by means of a burr, three sixteenths of an inch in diameter. On the next day an intense chill set in, and death ensued after twenty-four hours. Bosworth thinks that the fatal issue was due to brain abscess, which had lasted but twenty-four hours, and had been caused by sphenoidal suppuration ; that the latter had lasted but thirteen days, and had developed from an old, neglected ethmoid suppuration. He considers sphenoidal disease to be of very rare occurrence and dangerous character, while ethmoidal disease is by far more frequent, and without much danger.

M. TOEPLITZ.

101. BOSWORTH'S patient, a man aged forty-two, had, in 1876, contracted influenza, followed by hay-fever. In 1881 he developed a sort of melancholy, at first periodical, later on permanent. He complained also of a feeling of swollen eyes and of pressure between them. He tried all sorts of treatment from climatic and dietetic changes to surgical means, such as Baunscheidt, removal of stricture, castration, ligation of the pubic artery, and enuclea-

tion of a healthy eyeball. As a last resort, he submitted, in 1891, to an examination of the nose, which, in its right nostril, was found stenosed by an angular deviation of the septum, while the left side was filled by extreme hypertrophy of the turbinated body, covered by myxomatous tissue. The removal of the projecting septum and of the swollen turbinated body were followed by prompt relief, not only as to the aprosexia but also the mental and moral condition. His hay-fever also was cured. Bosworth believes, that the melancholia was directly due to ethmoid disease, viz., to some organic change at the base of the brain established by the former condition. M. TOEPLITZ.

102. We agree with the author, when he says that the healthy or diseased condition of the maxillary antrum may be demonstrated by transillumination or an exploratory puncture, even if so-called typical symptoms are lacking, and that an affection of the antrum may be ascertained as the cause of hemicrania, neuralgia, etc., where the inspection could not reveal any characteristic secretion in the middle nasal meatus. Not everybody, however, will agree with LINKENHELD, if he sees cogent indication for an operation in the purulent or chiefly purulent or even putrid character of the fluid liberated by the puncture, as extensive resection of the anterior wall, curettement of the antrum, making a counter-opening in the nasal wall, if the teeth are healthy, partial resection of the inferior wall by removal of the alveolar process, and additional counter opening towards the nose, when the teeth are carious. The after treatment is according to general surgical principles. (We know that the most putrid empyemata not unfrequently heal after a few irrigations.) Linkenheld scarcely uses irrigations when the nose is blown. The air current, passing through both openings, cleanses the antrum. The external opening is lightly covered with gauze, which is removed when the patient wants to blow his nose. In very many cases scraping has to be repeated and the openings enlarged. Nothing is said of the time of treatment required for a perfect cure.

ERH. MUELLER.

103. With reference to a case of Combe, in which a drainage tube of tin, $2\frac{1}{2}$ *cm* long, had remained in the maxillary antrum for four years, and then passed the nose, embedded in cheesy masses, ZIEM opposes the employment of obturators and drains after opening the antrum, as they protract the healing, and no food enters the antrum even without them. But not only pieces of canulas or

plugs may break off and enter the maxillary antrum, but also pieces of the drills used in operations, particularly if from the inferior nasal meatus a great force is employed. He again recommends to make a hole in the alveolar process with the drilling machine. In order to remove a piece of the instrument that has been broken off, he introduces a wire bent like a hook behind it and extracts it. (He did this twice successfully.) Irrigations may be used before resorting to Roser's bone forceps or to making a large opening. KILLIAN.

104. ROSE'S case was that of a boy aged fifteen years, admitted with an abscess in the frontal region. Two operations were performed, but death occurred. At the post-mortem examination, necrosis of the sphenoid was found, with purulent meningitis, pus in the sphenoidal sinuses, and septic pulmonary infarcts.

CHEATLE.

105. DAY'S patient, a physician, in 1884, cut his finger while operating, which resulted in severe blood poisoning. In 1891 he declined much more, suffering from frontal headache and extreme chilliness. During the summer 1892, the vault of the pharynx appeared eroded, and subsequently a small carious area was detected at the spheno-vomer articulation, from which a small piece of bone, of the size of a pea, was removed. Foul pus was discharged from the sphenoid and ethmoid, indicating the progress of caries. The body of the sphenoid and the basilar process of the occipital bone now became disintegrated. A quantity of carious bone was removed from the nostrils. The patient became very feeble.

Diagnosis: Necrosis of the base of the skull. Symptoms of brain abscess developed. Suppuration of the lymphatic glands on the left side of the neck. Death.

The post-mortem revealed a brain abscess springing from the centre of the right sphenoidal wing, through the temporo-sphenoidal lobe to the internal auditory meatus. Pus passed the foramen rotundum and pierced the wing of the sphenoid to the orbit, and the anterior ethmoidal cells. The entire body of the sphenoid and basilar process of occipital bone, the pterygoid processes, and ascending rami of the palatine bones were carious and loose. The vomer was entirely gone, and also the perpendicular plate of the ethmoid. The antra and frontal sinuses were intact. Dura on the clivus exposed. M. TOEPLITZ.

106. The greater frequency of hypertrophy of the pharyngeal

tonsil and its sequelæ at the seashore is evident. The climate seems to be an important factor, since all races are equally affected. Other causes are measles and scarlet fever, and, above all, heredity, as pointed out by THOST. E. Fraenkel demonstrated on the cadaver, that the hypertrophy may be congenital. Thost considers residua of purulent otitis media and progressive hardness of hearing as signs of former adenoids. He removes the hypertrophied tonsil, generally in superficial narcosis, with Gottstein's knife, as radically as possible. The attention of the aurist is called to formations of bands in Roensmüller's fossæ extending from the ridges of the tubes towards the roof of the pharyngeal vault, which may constrict the tubes. Thost cured in such a case hardness of hearing and otalgia by cutting the band. He observed simple, catarrhal, or such inflammations which corresponded to angina lacunaris, abscesses with severe typhoid or meningeal symptoms. In diphtheria, the tonsil may be destroyed by ulceration.

Peculiar are those cases in which scarlet fever developed after the operation, which has also been observed by B. Fraenkel. The increased swelling of the pharyngeal tonsil, which influenced the parents to bring their children to the surgeon, may be an initial symptom of scarlet fever. Perhaps the infection first entered here. In syphilis Thost saw papulæ and ulcers on the pharyngeal tonsil. Tuberculosis probably is more frequent than generally diagnosed. E. Fraenkel found it in ten out of fifty tuberculous patients. Thost found the pharyngeal tonsil affected in a case of lupus.

Hypertrophy of the pharyngeal tonsil regularly leads to swelling of the lymphatic glands of the superficial cervical plexus in the lower triangle of the neck, behind the sterno-cleido-mastoid muscle. In simultaneous hypertrophy of the faucial tonsils, the submaxillary glands are swollen. The frequent ear affections produce glandular enlargement before and behind the ear, the eczema of upper lip and chin, glandular enlargement under the chin. Of especial importance in diseases of the pharyngeal tonsil are two retropharyngeal glands next to the rectus cap. ant. maj. muscle, which swell, and may suppurate. Acute inflammation of these is mostly accompanied by a peculiarly inclined and laterally turned position of the head.

In enuresis nocturna, asthma, stammering, the results of removal of the pharyngeal tonsil often are not quite satisfactory,

but they are prompt in pavor nocturnus and headache. Swollen turbinated bodies often require special treatment. Many adults affected with them formerly suffered from adenoids.

KILLIAN.

107. EAMES does not believe that adenoid growths cause irregularities of the teeth, but rather that the latter are another expression of the same cause, which, although producing the adenoids, need not produce both in the same case. Neither the constant atmospheric pressure, nor the partial vacuum in the nose and naso-pharynx caused by deglutition, nor the dropping of the lower jaw with subsequent flattening of the lateral alveolar arches, nor the expansion of the lower jaw by the weight of the tongue, are the causes of the high-arched palate with irregular teeth. They are due to an arrest of development of the bones of the nose, together with chronic hypertrophy of the turbinated bodies. Eames presents, in confirmation of his views, models which exhibit well-formed arches in connection with large quantities of adenoid vegetations. M. TOEPLITZ.

108. Of 461 patients examined by O'KINEALY in the Out-patient Department of the Medical College, Calcutta, 100 were found to be suffering from adenoid growths, a percentage of 23.8. Of the total number examined, 171 were Europeans, of whom 61 were affected; the remaining 290 being natives, of whom 39 had adenoids, or 13.4 per cent. The native group includes Hindoos, Mohammedans, and native Christians from all parts of the country. CHEATLE.

109. FLATAN discusses the hearing dumbness (dumbness without deafness—Schmalz), with and without psychical defects. Associated with it adenoid vegetations (H. Gutzmann) and disturbances in the nose itself are found. Then rhinolalia clausa and aperta according to causes and therapeutic methods, and lisping, which also may be due to nasal affections. Finally stammering in its relations to diseases of the upper air passages is shortly discussed. BLOCH.

110. BOND'S case was that of a man aged thirty-three, who sought advice for deafness which was due to adherence of both mallei to the promontories. In the course of examination his pharynx was found to move in a rhythmical manner, horizontally, towards the left side and back again, the soft palate being drawn up to the left side with each movement of the pharynx, these clonic spasms continuing without intermission. Nothing abnor-

mal had been felt by the patient, who thought his throat healthy. No sound could be heard accompanying the spasms either by the patient or by others. CHEATLE.

111. To the very rare cases, so far observed, a case of myxo-sarcoma is added. In a young man a pretty solid tumor developed, thickening the posterior wall of the pharynx down to the tongue, and causing difficulty of swallowing. It was pediculated, and sprung from the surface of the soft palate. Choanæ and naso-pharynx were free. After free application of cocaine the tumor came easily away with the snare in two portions. It was non-malignant according to the histological examination. Some therapeutic remarks are added. ZIMMERMANN.

112. After discussing in detail the latest pathological, anatomical, and bacteriological articles on the hypertrophy of the tonsils, FERRERI and GARBIN report their investigations with cultures and inoculations of animals. They tried to exclude as much as possible the micro-organisms, which are found in the mouth of healthy persons, and from there invade the crypts of the tonsils. Virulent pyogenic cocci were found in all tonsils examined. The authors infer from this that the chronic hypertrophied tonsils are latent foci of an eventual general infection. Hence the galvano-cautery or ignipuncture is deprecated, and the radical abscission recommended. GRADENIGO.

113. FARLOW removes the tonsils of children under anæsthesia with an écraseur before removal of the adenoids. He uses a modification of Hooper's écraseur, which he straightened, provided with a flattened and widened canula and longer screw, and armed with piano wire No. 7. The heated wire is rejected by him. In children without anæsthesia he prefers the guillotine. In adults, however, he prefers the écraseur, except for cases better adapted for the amygdalotome. In deep-seated tonsils, or such adhesive to the pillars, and for trimming, Farlow uses Ruault's punch or Hartmann's conchotome, and with more advantage after cutting the surface with knives and scissors. The treatment with galvano-cautery takes too long, but is useful in bleeders, in adhesive tonsils, and for the destruction of follicles. M. TOEPLITZ.

114. The first of NEWMAN'S cases was that of a man aged fifty-five, who had had an epithelioma, involving the upper third of the left tonsil, posterior pillar, and left side of the uvula, removed in 1890. The second, that of a woman aged fifty-one,

who had had a carcinoma, situated in very much the same position as in the first case, removed in 1891. The operations were done through the mouth with the galvano-cautery, a preliminary tracheotomy being performed in the second case. There was no recurrence in either up to the present time. CHEATLE.

115. The chief symptoms of ROTH's case were: Continuous fever for eight days, very severe pain in swallowing, in the ears and occiput, and obstruction of the nose, precluding completely normal breathing. The abscess opened spontaneously.

POLLAK.

116. KELLER's case differs from those heretofore published in the following points: 1. Bilateral occurrence of herpes on the hard and soft palate, the palatine arches and epiglottis, without affection of the larynx. 2. The lack of any herpetic eruption on external skin and lips. 3. The nasal mucous membrane remained perfectly intact. 4. The subsequent paresis of the velum palati.

POLLAK.

117. CHAPPELL's Case I. (own observation). A female, aged forty-six, complained of dryness of eyes, nasal fossæ, mouth, larynx, and trachea. The attacks of dry sensations in the eyes and nose, exciting her to rub the parts, began in 1889, intensified during menstruation, were the mildest between two periods, increasing again toward the expected one. With the progress of the disease they extended farther down toward the trachea with increase of urination and, in 1893, simultaneous sudden swelling of the parotid glands, which subsided in a few days. The dryness continued even after the menstruation had ceased entirely. Treatment was of no avail and patient finally died when complete paralysis had developed.

II. A female complained after influenza of constant pain in the roof of the mouth on one side of the middle line and occasional pains in the temples and eyes. The buccal dryness is extreme.

III. A female, aged sixty, suffered after a shock from headache, insomnia, and intermittent deafness. In 1890, she began to feel the dryness of the mouth. The mucous membranes were pale. There was difficulty in swallowing dry food. The teeth were decayed. Pilocarpine in small doses produced some moisture. Blue litmus paper rubbed with dry tartaric acid required forty-two seconds over the tongue, and thirty seconds over Wharton's duct to change the color. All these cases are considered to be of central origin. M. TOEPLITZ.

118. MYLES's paper is the continuation of the one reviewed in these ARCHIVES, 1895. Transillumination is considered very valuable, particularly in antral affections. A unilateral umbra on the lower conjunctiva with absence of crescentic illumination on the lower lid, and absence of the perception of light, when the eye on the same side is closed, will frequently, particularly in blond and thin persons, prove an affection of the antrum. The electric tubular lamp placed above the inner canthus is only corroborative of diagnosis of frontal sinus disease. The character of the secretions flowing from the natural opening and their location, which is not always possible, will add more certainty to the diagnosis.

In locating the discharges from the antrum or sphenoidal sinus, the head has to be bent downward in order to obtain the greatest flow. If all these measures fail to establish the diagnosis, irrigation either through the natural opening with syringe and curved tube, or with the trocar and canula either from the nose or fossa canina, will accomplish it.

For treatment, irrigation through the natural opening should be tried and persisted in for a few months, but then an opening of from 8 to 10 *mm* in diameter is made through the molar ridge over the tip of the first molar, or, to save the tooth, in the canine fossa.

Patients with antral disease rarely locate their pain in the antrum, but in the supra-orbital, temporal, or occipital region, whilst in those of other sinuses it is there located.

Myles treats the acute sinuitis with open foramen prophylactically, the acute and subacute cases with occlusion of the normal outlet by means of irrigation or penetration with trocar and canula. Polypoid degenerations are removed through large counter-openings ; adontic periostitis with or without caries is best treated through the molar ridge. For atrophic rhinitis, irrigation and curetting are used. Gummata are laid bare and scraped. Tumors can be recognized and removed by surgical procedures

Myles recommends the malleable handle curettes for diagnosis and treatment and the headed rubber tubes for drainage.

He appends another series of twenty-one cases, which are very instructive for the greater part, by their excellent, for the smaller part, by their negative results.

The original is highly recommended to the reader for the original views and methods of the author. M. TOEPLITZ.

119. FREEMANN devised, for the *Dessault-Küster* operation through the fossa canina a hand drill, the blade of which cuts in both directions by a series of half turns; the diameter of the perforation is $\frac{9}{16}$ inch. Intra-oral operations are best done under general anæsthesia. Freeman uses for intranasal operations a straight trocar and canula, perforating the outer wall of the nose with a few taps of the mallet, close to the floor, low down and more anteriorly in the lower meatus, thus avoiding the lachrymal duct, which is situated 30 to 35 *mm* from the naso-labial junction with its exit high under the turbinal. The canula is, after perforation and after removal of the nuts, withdrawn and a drainage tube is slipped over the trocar, which is then also withdrawn. Through the permanent drainage tube, the sinus is washed out with a long silver tube (wash tube). This method keeps the perforation open and enables the patients to treat the cavity themselves.

M. TOEPLITZ.

120. CARR advocates the opening through the alveolus and militates against the nasal operation. He considers metal drainage tubes dangerous through infection and irritation; silver tubes corrode easily. A plug of sterilized gauze is the best means of closing the opening. M. TOEPLITZ.

121. The diagnosis of antral disease cannot be made by one sign only, but by the combined consideration of all, of which transillumination is considered the most important. BROWN recommends for treatment, first, after removal of polypi, granulations, or hypertrophies of the middle turbinates, the direct treatment of the suppuration by the direct irrigation through the ostium maxillare; secondly, opening through the inferior meatus by means of a trocar; thirdly, drilling through the alveolus; fourthly, opening through the canine fossa; and fifthly, the combinations of the latter method with the perforations from the inferior meatus. He reports four cases of antral disease, all of the left side, two of which were operated by the drill in the canine fossa, one by irrigation from the natural opening and one by drilling through the alveolus of the first molar. Three of these cases were cured and one greatly improved. M. TOEPLITZ.

122. All cases of papillary hypertrophies or papillary fibromata reported as papillomata are not true papillomata in the sense of Virchow. In addition to the only authentic case of nasal papilloma reported by De Santi in the *Lancet*, 1894, WRIGHT gives a case occurring in a woman aged twenty-eight,

who presented in the left nostril a globular, flattened, freely movable, pedunculated mass of about one *cm* in diameter attached to the upper part of the cartilaginous septum about two *cm* from the columna and subjected to the attrition of the plica vestibuli. The pedicle is composed of fibrous tissue which sends out papillæ covered with columnar epithelium ; the latter are proliferating profusely, the stroma is scanty, but extremely vascular. The epithelium forms digitations. No prickle cells could be found. An illustration is appended. Another similar tumor from the septum of a five-year-old child has lately also been histologically examined by WRIGHT. M. TOEPLITZ.

123. While THRASHER believes, that of all accessory cavities, the ethmoidal cells are most frequently diseased, he considers necrosis of this bone to be very rare. The necrosis may be produced by the pressure of polypi, as well as the latter are caused by ethmoiditis. There is also a causal relation between the cysts of the middle turbinate and necrosis. Thrasher appends two cases of necrosis of his own observation and prefers for their cure the cold snare with subsequent curetting.

M. TOEPLITZ.

124. WRIGHT is not in accordance with Tornwaldt's views on the frequent occurrence of cysts of the bursa pharyngea, but believes that they are very rare, and that the bursa pharyngea is due to chronic inflammation. Cysts may be found by inclusion and are thus lined with squamous epithelium, as in the case reported in these ARCHIVES, 1895, by Lamphear, or they may originate through retention from the oblong lymph spaces, near the base of the folds, which are lined with a single layer of endothelial cells and are well illustrated by a drawing. In Wright's first case, the cyst was located in the roof of the pharynx near the septum, in a colored woman treated for ethmoid disease. The cavity has no lining, and near one side is an oblong space, also without lining, thus confirming the view of its development by retention. The second cyst was located at the base of the right posterior faucial pillar, lined with squamous epithelium, and was probably an inclusion cyst. The microscopical sections of both cysts are well illustrated. M. TOEPLITZ.

125. RAVOGLI reports four cases of ulcers in the pharynx, of the size of a dime, dark red, with a deep centre, which occurred from two to three years after the initial lesion, in four men addicted to the use of alcohol and chew-tobacco. He considers

the lesion as a late secondary. The affection is painful and connected with fever. The ulcers when properly located healed with a superficial whitish scar. These manifestations are rare.

M. TOEPLITZ.

126. The circumscribed inflammations of the upper air tract, as result of vasomotor disturbances, such as hay-fever, nasal hydrorrhœa, asthma, etc., are not reflex in character; furthermore, the greater susceptibility of the mucous membrane through inflammation, which is a contributory, not an exciting cause, does not explain these manifestations either, which, thirdly, may be the result of the action of some localized morbid process upon the vasomotor centre in the medulla or upon the secondary centres in the gray matter of the cord. BOSWORTH, without entering the obscure question of reflex action, explains the vasomotor disturbances associated with ethmoid disease, viz., aprosexia, by the intracellular pressure crowding upon the base of the brain, disturbing the circulation, which presses directly upon either the primary or secondary vasomotor nerve centres. The polypi may also cause reflex neurosis. M. TOEPLITZ.

127. After a careful review of the cases reported by Hutchinson, Hadden, Osler, and others, RIESMANN gives a case of his own observation, which occurred in a woman aged thirty-eight, suffering, apart from headaches and abdominal cramps, from a dry, pasty sensation in mouth and throat, and from burning pain in the tongue and tension in the face. The tongue was studded on the median surface with petechial hemorrhages. Treatment proved futile. M. TOEPLITZ.

128. KOPLIK described in a former paper (*N. Y. Med. Journ.*, 1891) a series of cases, occurring in one family, one with a simple catarrhal angina, another with a severe non-membranous angina, and a third of fatal diphtheria with membrane, all of which presented large numbers of virulent Loeffler bacilli. Another set of cases exhibits a minute speck of membrane upon the pharynx; a third set shows pultaceous deposits; a fourth, necrotic ulcerations of the tonsils. The most important atypical cases of diphtheria are those which resemble a simple lacunar tonsillitis. In a second paper (1894), these cases are divided into three groups: First, exceedingly mild cases; secondly, those with more pronounced local and constitutional symptoms; and, thirdly, those with malignant features from the outset, with coagulated exudate upon the tonsil after the first few days. The

bacilli were found in the depths of the lacunæ in all three groups. They are in all of equal virulence and retain it during convalescence. This is important for the prophylaxis. The diagnosis can only be made by bacteriological examination, and, if found diphtheritic, the case must be isolated. Mild cases can only be explained by immunity. M. TOEPLITZ.

129. Ludwig's angina is an intensely infectious phlegmon, which occurs under peculiar anatomical conditions. No special infectious germ has been established as the only cause of the disease. The autopsies reveal a general disorganization of the cervical cellular tissue and muscular substance. The infection may be excited from oral glands, ulcers of lips, dental caries, and tonsillitis. The pus originates in the so-called sublingual portion of the floor of the mouth, the apex of which is formed by the place of contact of the mylo-hyoid and genio-glossus muscles, the base by the tongue, the external wall by the inferior maxilla and mylo-hyoid muscle, and the internal wall by the genio-glossus and myo-glossus muscles. The space contains the sublingual glands, which are the starting-point of the affection, but the submaxillary also may be secondarily affected by penetration of its sheath or by invasion into the submaxillary region through the mylo-hyoid muscles. The subhyoid region is not implicated in this disease. The symptoms are constitutional, of a sthenic or asthenic type, or local; then, with wooden-like induration, thrusting up the tongue, dyspnœa with laryngeal œdema, and swelling internally from the dental arcade. The prognosis is grave. It occurs most frequently among males and during the third decade of life. The best treatment is early lateral incision to relieve tension through the mylo-hyoid muscles. M. TOEPLITZ.

130. The instrument is $7\frac{3}{8}''$ long, $3\frac{1}{2}''$ being the handle, $3\frac{7}{8}''$ a delicate shank. The cutting part is placed at an angle of 45° with the shank, the blade being $\frac{1}{2}''$ long, probe-pointed, $\frac{1}{16}''$ broad, and the cutting edge curved. The blade is notched near the probe-pointed end on the cutting surface. The instrument is made of steel in one piece by the Ford Surgical Instrument Company, New York. TOEPLITZ.

131. At the end of the straight canula of Wright's écraseur VEEDER places an oval-ringed canula with a central groove for the wire, which is withdrawn by the circular screw. Other attachments for the removal of growths at the base of the tongue and at the larynx are also devised. M. TOEPLITZ.

132. There are but 32 cases of angioma of the tongue on record. HULEN'S patient, a woman, aged forty-three, had the tumor for more than twenty years, probably longer, always of the same size, causing but slight impediment of speech. The tumor was located 3 *cm* from the tip of the tongue on its left side, was bluish, globular, with vertical rugæ and some small nodes on its lower surface, soft, spongy, and easily emptied. It measured 3-4 *cm* antero-posteriorly, 3.2 *cm* transversely, and 3.5 *cm* vertically. A good illustration is given. M. TOEPLITZ.

133. All cigarette smokers inhale as far as the bronchial tubes with superficial inspirations. They absorb more nicotine than the cigar smokers by the more frequent dose. The effects are local and constitutional. The latter are only those of nicotine poisoning, which are extremely injurious in youth, and not so much so, but still harmful enough in adolescence. The evil is the more reprehensible, since it is more easily acquired than cigar-smoking. The local effect consists in the production of a trivial hyperæmia and secretion. An existing throat or nose trouble may be, directly or by its constitutional depressing effect thereby aggravated. M. TOEPLITZ.

AUSTRIAN OTOLOGICAL SOCIETY.

SESSION OF FEBRUARY 25, 1896.

Chairman, Prof. GRUBER.
Secretary, Dr. KAUFMANN.

1. KAUFMANN reports a case of perisinuous abscess with pyæmia cured by operation in Politzer's clinic:

A girl, aged twelve, with chronic otitis media suppurativa was suddenly affected with chills, loss of consciousness, and vomiting, sleeplessness, headache, and vertigo. When admitted the patient was somnolent. Temperature 38.5°, repeated vomiting. External meatus filled with offensive thick pus. The radical operation reveals cholesteatomatous masses and granulations in mastoid process, middle ear, and attic. The sinus is laid open along its whole course in the temporal bone. It is surrounded by much pus of very thick consistence, its wall is discolored, but it contains liquid blood. After the operation normal temperature. Recovery.

2. GOMPERZ demonstrates a patient with congenital abnormities at the pharyngeal tubal ostia and formation of diverticles at the roof of the naso-pharynx. A prominence 3 to 4 *mm* high, 2 *mm* wide, stretched from one orifice of the Eustachian tube to the other, along the roof of the naso-pharynx, and formed a vault over the choanæ, having the same concavity as the phryngeal vault.

3. POLITZER demonstrates some preparations showing defects of bone in the lateral wall of the attic. Politzer thinks that inflammatory agents and septic cocci enter the bone and destroy its tissue, if the margin of the incisura Rivini is laid bare by septic suppuration, which is the rule in this locality. The longer the suppuration keeps on, the more extensive is the destruction of the

bone. The subsidence of the suppuration therefore may terminate either with a small or a very large bony defect of the attic.

4. Alois Kreidl demonstrates a cat, in which he had destroyed both auditory nerves a year ago according to a modification of Ewald's method. After a year the animal exhibited the following symptoms: Audible sprawling gait, constant movement of the head, awkwardness in grasping its food and in jumping, various disturbances of equilibrium, wanting of galvanic reaction. Kreidl attributes these symptoms to a lack of the organs of equilibrium in the internal ear. The middle ear is intact. The labyrinth also shows no changes, except some as seen in leukæmia. This case is the first in which Ménière's disease was caused by an isolated affection of the auditory nerves.

Ferdinand.

5. Alt. Post-mortem of a case of Ménière's disease (leukæmia).

Alt reports on some work done by him with Dr. Frederick Pineles. A laborer, aged sixty-six, who, up to the winter of 1894, never was seriously sick, commenced to complain of headache and weakness. June, 1895, he fell unconscious with vertigo and tinnitus, and had almost entirely lost his hearing when he came to. A total loss of hearing occurred after fourteen days. The patient stayed in bed ever since and had frequent attacks of vertigo. July, 1895, he entered the first medical department of the general hospital. Here the diagnosis was made: High degree of myelolienal leukæmia (2,600,000 red to 600,050 white blood corpuscles about 1:4, numerous mono-nuclear cells, large leukocytes, myeline cells with lymphocytes, a few nucleated red blood corpuscles, enormous tumor of the spleen, very large liver, extensive hæmatomata). The examination of the ears revealed both *Mtt* very much retracted, opaque, light reflex displaced. T. F. C_2 not perceived from vortex. C_2, C_1, and C not heard in front of left ear, nor from the left mastoid process. The tuning-forks C_2, C_1, and C, when very intensely struck, heard very shortly in front of right ear, not at all when placed on the bone. Very loud voice only next to right ear; to left, total deafness. Currents of 15 to 20 M.-A. do not cause any vertigo.

Death September 8, 1895.

Post-mortem: Myelo-lienal leukæmia with suppurating leukæmic hæmatomata. Both temporal bones and the brain were more carefully examined. The brain and auditory nerve, treated ac-

cording to Weigert-Pal's method, presented the following changes: Very large and small leukæmic small-celled infiltrations at numerous places of the *intramedullary portion of the auditory nerve,* as well in the lateral as in the medial radix of the auditory nerve. The exit of the auditory nerve, where both radices coalesce, is especially much infiltrated, the pia slightly thickened and infiltrated with small cells. A degeneration is noticeable in some points of the auditory fibres. The auditory nuclei, the posterior corpora quadrigemina, cerebellum, do not show any pathological changes. *Hemorrhages or residua of hemorrhages are nowhere to be found.*

BOOK REVIEWS.

I.—**Atlas der Beleuchtungsbilder des Trommelfells (Otoscopic Atlas).** By Prof. A. POLITZER. With 392 chromolithographic pictures of the tympanic membrane and 67 drawings in the text. W. Braumüller, Vienna and Leipzig, 1896. Price 20 marks. [$5.]

The new gift, in book form, which A. Politzer—the famous otologist, who by his knowledge, talent, perspicacity, and industry stands unrivalled among his fellow-specialists—has made to the medical profession, consists of a splendidly gotten up large octavo volume of 150 pages and fourteen plates, each containing 28 colored figures, all drawn from nature by the author. Thirty years ago he published a smaller work of the same kind, two plates with 24 colored figures, accompanied by a less extensive text with 13 illustrations. The present work is the fruit of unremitting labor during a lifetime. The text, a systematic and exceedingly clear and practical presentation of the theory and practice of otoscopy, deals in a most instructive way on the anatomy and the visible diseases of the parts concerned in this special study. The pictures of the plates are so grouped together as to represent the varied appearances of the different diseases in their successive stages. The otoscopic condition represented by each picture is concisely explained, and supplemented by a sketch of the history of the case, as well as a reference to the place where the general description of the patient's disease is to be found in the preceding text. To the student the book will be a most useful guide, and to the aural practitioner it will serve as a very interesting and useful review of his own experience.

We agree with the author when he says that the diagnostic explanation of the otoscopic conditions of the membrana tympani is much more difficult than is commonly supposed, and we add

that we consider it also more difficult than the correct interpretation of the various ophthalmoscopic pictures of the fundus oculi. The latter are very much larger, mostly much brighter, and better differentiated than the former. On the other hand, otoscopy has the great advantage over ophthalmoscopy that its objects can be examined not only with the eye, but also with the senses of hearing and touch. Inflation, the auscultation tube, and the pneumatic speculum inform us of the whistling perforation, the gurgling and displacement of liquids within and without the tympanic cavity, and the mobility of the membrana tympani, whereas the probe, the almost constant companion of the painstaking aural diagnostician, verifies or corrects in a multitude of cases our ocular impressions of the numerous, heterogeneous, and changing conditions of the parts crowded together at the medial end of the external ear canal. H. K.

II.—**Traité de Chirurgie Cérébrale.** By A. BROCA and P. MAUBRAC. Grand octavo, 582 pages with 72 figures in the text. Paris, Masson & Co., 1896. Price 12 francs. [$2.50.]

The first chapter gives a concise description of the topography of the brain, based on embryological and comparative-anatomical data. The second contains the methods, apparatus, measurements, and delineations by which the situation of different portions—convolutions, fissures, etc.—of the brain can be traced on the external surface of the skull, if surgical interference comes into question. The third and fourth chapters treat of cerebral localization from a physiological, pathological, and diagnostic point of view, in particular the motor and sensory symptoms, both in cerebral and cerebellar disease, and of the diagnostic value of these symptoms. In the fifth and sixth chapters are described the technique and dangers of cerebral operations, in particular the advantages and disadvantages of trephining and chiselling. These six chapters—130 pages—form the *general part* of the subject.

The *special part* treats in its first chapter, very clearly and with much knowledge of detail, of the traumatic brain lesions amenable to surgical treatment. The second chapter, which will interest our readers most, contains in exactly 100 pages an excellent presentation of the **intracranial complications of purulent otitis media and their treatment.** The authors insist on the importance of prophylaxis,—that is, the proper appre-

ciation and care of the primary ear disease,—and refer to the treatise by one of them (A. Broca and Lubet-Barbon, *Les Suppurations de l'Apophyse Mastoïde et leur Traitement*, Paris, 1895), which we took pleasure in reviewing and recommending to our readers last year (these ARCHIVES, vol. xxiv., p. 250). The intracranial complications of ear disease are described under the heads of meningitis, sinus-phlebitis, and abscess, the latter being epidural, cerebral, or cerebellar.

The authors state that in acute diffuse meningitis medical art is powerless, but partial and sub-acute meningitis may sometimes be cured by an operation. Broca details two cases of fatal acute meningitis from his own observation, and a considerable number of his own and foreign cases in which more or less marked symptoms justified the diagnosis, but where recovery with, and sometimes without, operation took place. In some of the cases the mastoid and cranial cavity were opened, in some also the dura was incised; no pus was found, yet the patients recovered. They call these cases pseudo-meningitis or meningism, an attenuated form of meningitis, and explain them by the consecutive œdema and even pus which surround a focus of active suppuration, and disappear when the primary focus is stamped out. They compare it to the peritonism which frequently complicates circumscribed peritoneal, and even juxta-peritoneal, inflammation. The authors quote Körner for the observation that such cases, especially in children, may end fatally, and at the autopsy nothing but œdema of the meninges and the brain is found. Such cases have been described quite recently under the name of meningitis serosa. In all doubtful cases the authors advise operation (tympanum, mastoid, cranium, according to conditions found), and not to lose time with simple procedures, the air douche, for instance, "the efficacy of which, however, is great in many patients *(dont l'efficacité est cependant grande chez bien des sujets)*." We could not concur in this last assertion; on the contrary, we would consider inflation even dangerous in cases of acute suppurative otitis media, knowing by personal and other experience that it has been followed by immediate increase of pain and inflammation.

The picture of *sinus-phlebitis* is very carefully and accurately drawn. The pathogenesis, development, varieties, and different terminations of this affection are detailed from personal observations (the first three fatal), and a very careful appreciation of the

incident, quite abundant literature. The authors cite the cases where sinus-phlebitis with pronounced pyemic symptoms have been cured by an operation on the mastoid only. Yet they do not consider this a sufficiently safe procedure in such cases (an opinion which the reviewer shares, though the authors give him credit for two cases cured in this way), but advise to remove gently all the points of diseased bone that yield to the cutting edge of the curette. Then, as a rule and according to the conditions found, the epidural collection of pus should be wiped out, the sinus disinfected, and the jugular vein tied. The steps of the operation are: 1. ligating the jugular at the neck, below the thrombus, if possible; 2. opening the mastoid and tympanic cavity; 3. expose, incise, and disinfect the sinus; 4. irrigate the bone cavity and the upper end of the jugular; 5. plug the sinus with iodoform gauze.

The symptoms of *cerebral and cerebellar abscess* are duly dwelt upon, yet the difficulty of diagnosis and localization is not concealed. The symptoms are classified and enumerated in the usual way, as 1. symptoms due to the suppuration; 2. those due to increase of intracranial pressure, and 3. symptoms of localization. The etiology and the totality of the disease-picture must lead to the diagnosis more than the presence of special symptoms. Of the semeiology of *cerebellar abscess* the authors say that it is not very definite either. The only symptoms of some value are: occipital headache, vomiting, drunken reeling, dizziness, and stiffness of the nape of the neck. As those symptoms are almost never combined in a given case, the diagnosis remains difficult. They are more dwelt upon in chapter iv., p. 93. Like every operator in this new field, A. Broca confesses mistakes in diagnosis which only the autopsy cleared up. His excuse is that he was mistaken in good company. He emphasizes that in many cases several lesions are present, and therefore he is a warm advocate of the so-called **mastoid method** of operation, which was first described and recommended by WHEELER, at the Brit. Med. Ass., 1887 (*Lancet*, London, 1887, vol. ii., p. 317). This method, which has of late been repeatedly endorsed—among others by U. Pritchard in these ARCHIVES, vol. xxiii., p. 24, 1894—consists in first opening and cleansing the mastoid and the tympanum, and then, if advisable according to the conditions found, the wound should be extended backward into the posterior cranial fossa, where epidural abscess, thrombosis of the lateral sinus, and cere-

bellar abscess may be found; or the extension of the wound is carried upward and forward, from the aditus ad antrum up into the middle cranial fossa, where epidural and temporo-sphenoidal abscess can be reached and dealt with. The other methods are discussed in detail, and numerous instructive cases, from many authors, are related either in full or more or less abridged. The indications, differential diagnosis, and operative technique are in many places repetitions of what has been most carefully described in the general part in chapters iii. to vi., but the presentation is more specialized, and nowhere tiresome.

The remaining 220 pages of the book are devoted to the description of intracranial tumors, diverse cerebral lesions (hemorrhage, softening, meningitis, abscess, and paralysis from various causes), hychrocephalos, microcephalos, and idiocy, functional troubles (epilepsy, psychoses, obstinate headache), and encephalocele.

The whole work gives a full presentation of what brain surgery can legitimately claim, and upon what it has experimentally encroached. It is attractively written, never heavy, not particularly dogmatical, but with an earnest purpose to impart useful information. Literature is most extensively and impartially used; we were astonished to see so many American authors cited, especially in the last third of the book.

We have read this opportune work with delight and great profit, and feel assured that it will be welcome to all that take an interest in the newest development of this branch of surgery, in particular to otologists. H. K.

MISCELLANEOUS NOTES.

APPOINTMENTS.

SANTI, P.R.W.; de F.R.C.S., has been Appointed Assistant Surgeon and Aural Surgeon to the Westminister Hospital, London.

DALE, FREDERIC, M.D., CANTAB., F.R.C.S. Oxon, has been appointed Honorary Ophthalmic and Aural Surgeon to the Scarborough Hospital and Dispensary.

The extraordinary Professor Dr. H. SCHWARTZE, of Halle, has received the title of honorary professor.

Dr. JANSEN, of Berlin, and Dr. GRUNERT, of Halle, have been appointed lecturers (Privat-Dozenten).

Dr. V. MAZZI, of Pisa, Dr. G. MASSINI, of Genoa, and Dr. G. GRADENIGO, of Turin, have been appointed extraordinary professors.

NOTE.

The Lord Bishop of Derry, on April 28th, opened a Hospital for diseases of the Eye, Ear, and Throat, in Londonderry, containing twelve beds. It will fill a want not only in Londonderry, but in the Northwest portions of Ireland.

OBITUARY.

Dr. SAMUEL SEXTON, of New York, well known as an aural practioner and writer, died in July, 1896.

Contents of the newest number of the *Zeitsch. f. Ohr.* Vol. xxviii., No. 4.

O. KÖRNER. Suppuration of the ear and mastoid in diabetics.

A. BULLING. Otitismedia in influenza.

ROEPKE. Case of otitic pyæmia; abscess, and thrombosis of lateral sinus. Operation. Recovery.

Translation from the English edition of papers by DENNIS, RICHARDSON, and THOS. BARR.

Reports on Progress for 3d and 4th quarters of 1896 (translated in our previous issues).

EDITORIAL NOTICE.

We beg authors to send American papers to be reviewed in the *Report on the Progress of Otology* to Dr. GORHAM BACON, 63 West 54th Street, New York, British papers to ARTHUR H. CHEATLE, F.R.C.S., Esq., 117 Harley St., London, W., books and monographs in book-form to the editors.

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3. On the Spontaneous Recovery of Cholesteatoma and Cholesteatoid Affections in the Temporal Bone. By Dr. **Konrad Redmer,** of Danzig, Germany. Translated by Dr. J. A. SPALDING, Portland, Maine 375

4. Acoustic Railway Signals and Acuteness of Hearing. By Dr. **H. Zwaardemaker,** of Utrecht. Translated and Abridged by Dr. CHARLES H. MAY, New York. (With Plates IV. and V. of Vol. XXVIII., Germ. Ed.) 385

5. Report of the Austrian Otological Society, Meeting of April 28, 1896. Translated by Dr. C. H. MAY, New York 393

6. Transactions of the First Austrian Otological Congress, Held on June 28 and 29, 1896. Translated by Dr. MAX TOEPLITZ . 396

7. Report on the Fourth Meeting of the Dutch Laryngo-Rhino-Otological Society, Held at Utrecht, on May 17, 1896. By Professor **Guye,** of Amsterdam. Translated by Dr. MAX TOEPLITZ 410

8. Report on the Progress of Otology during the Second Quarter of the Year 1896. By Dr. **Arthur Hartmann,** Berlin. Translated by C. ZIMMERMANN, Milwaukee, Wis. 415

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   I.—Die Krankheiten des Gehirns und seiner Adnexa im Gefolge von Naseneiterungen. By Dr. R. Dreyfuss, Strassburg.
   II.—Vademecum und Taschenkalendar für Ohren-, Nasen-, Rachen-, und Halsärzte auf die Zeit April 1896 biz Marz 1897. By Dr. L. Yankau.
   III.—Die Otogene Pyämie. By Dr. Hugo Hessler, Halle.
   IV.—Manual of Diseases of the Ear. By Thomas Barr, Glasgow.

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NOTICE TO CONTRIBUTORS.

The editors and publishers of the ARCHIVES beg to offer some suggestions to authors who propose to favor them with their contributions.

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